Lectures
ON THE
MECHANISM OF RESPIRATION IN PHYSIOLOGICAL & PATHOLOGICAL CONDITIONS.

Delivered before the Faculty of Physicians and Surgeons of Glasgow.

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LECTURE I.—PART I.

MR. PRESIDENT AND GENTLEMEN,—In the year 1816—the year after Waterloo—a circumstance occurred in Paris that in its results has been of greater and more enduring importance to mankind than any or all of the turbulent events which that city had witnessed in the preceding forty years. That circumstance was the appointment of Laennec to be physician to the Necker Hospital. He was then in his thirty-seventh year. He had undergone a training in professional subjects, and in the physical sciences collateral thereto, of a kind that in his new position enabled him to observe and to reason on the phenomena of disease which then came under his notice with a comprehensiveness and exactitude that have never been surpassed in the long history of medicine. In the first two years of his hospital work he made that marvellous application of mediate auscultation as interpretive of pulmonary conditions that still fills the mind of every reader with amazement. The breath-sounds of health and disease revealed to him by his newly-invented cylinder or stethoscope he explained and classified so truthfully, and in language so simple and accurate laid his work before the profession, that it at once almost became common property, and physicians everywhere have listened and spoken of pulmonary sounds just as Laennic did, hearing what he taught them to hear, and talking and writing of their cases in the terms that he first employed. So completely have his views been established, and so universally in the profession have they been received, that at the present day the hospital physician and general practitioner with almost equal facility and exactitude ascertain whatever of functional or structural change can be deduced from the respiratory sounds. But during all those years, while the *acoustics of respiration* have led the physician, by formerly untrodden ways, to new regions of knowledge, even more and more sharpening the accuracy with which he can observe and practically deal with many of the pathological changes that occur in the minute recesses of the pulmonary structure—in all those eventful sixty years how small has been the aid afforded to clinical work by the mechanics of respiration. And this extraordinary discrepancy is all the more wonderful that for years past so many of the physiological mechanisms have been subjected to most searching investigation by methods and appliances as rigorously exact as have been used in any department of scientific inquiry. The rate at which the blood travels in the arteries, the speed of the pulse-wave, the rapidity with which a stimulus is carried along a nerve-fibre, have all been determined with very great accuracy. The weights respectively that press on the aortic and pulmonary valves, the number of impulses that in a second flow from the nerve-centres to a muscle that is in action, the minute fraction of time that is required for the molecular changes in the cells of nerve-centres concerned in reflex acts,—all these we can express in exact arithmetical terms. But I need not in this hall adduce instances of physiological triumphs in the investigation of the living mechanical processes, as we have a most perfect recollection of the brilliant description and demonstration of these given us by Dr. McKendrick in the first course of Faculty lectures. And many of these discoveries are now of more than mere speculative scientific interest, having already been wafted from the physiologist's laboratory to the wards of the physician, and taken permanently on the yoke of practical service in the healing art.

Very wonderful, then, it must appear that in the clinical work of the most highly cultured and most advanced physicians in this country at the present day scarce more aid is received from respiratory mechanics than was the case thirty or even forty years ago. But this department of inquiry has by no means been entirely overlooked. At various times, by different forms of stethometers, the breath movements have been measured, and lengthy tables of such measurements in health and disease have been with great patience and care constructed. And of late years instruments for recording by the graphic method in various ways these movements have been called in aid, and many interesting observations have been made. One of the very earliest of these I had the pleasure of exhibiting, at a conversazione of the Faculty in 1868, and I then did not doubt that from its use important practical results would speedily come. But ere long I saw that before the graphic method could become of any great practical value to the physician in so far as respiration is concerned, a prolonged and patient inquiry must first be made into many of the fundamental phenomena of the mechanism of breathing. In this field I have worked, as opportunity has offered and the exigencies of other duties have permitted, and in these lectures I shall have the privilege of bringing under your notice whatever of serviceable result I have obtained, or suppose I have obtained.

The Calendar of the University of Glasgow informs us that the present professor of chemistry is the ninth teacher who has there lectured on that branch of the medical curriculum. His seventh predecessor was Dr. Joseph Black, the discoverer of latent heat, whose portrait adorns the hall in which we are now assembled. But although Dr. Black owes his popular fame to that celebrated discovery, he made another contribution to science that concerns us much more nearly. He, in the year 1755, isolated and experimented on carbonic acid. He did not call it by that name, but spoke of it as "fixed air," from the circumstance that it could be absorbed and retained or "fixed" by quick lime and other bodies. Necessarily he was altogether ignorant of its chemical constitution, for the discovery of oxygen by Priestly was then nineteen years away in the future. Yet does his work form an epoch in the history of science, for he showed this gas to be different entirely from common air, that it might be united with certain bodies greatly altering their qualities, and set free from them again by appropriate means; and among other facts regarding this gas first disclosed by him were these, that it is expired from the lungs of animals, and that in the lungs common air is partly converted into fixed air. He thus prepared the way for the final exposition of the chemical composition of this gas by Lavoisier, and the further brilliant demonstration by that great philosopher of the essential chemical change that occurs in respiration.

Prior, then, to the time when, by the genius of Black, a glimmer of true light was thrown on the chemistry of respiration, what could have been the views entertained with regard to the mechanism of breathing? At that time, the middle of last century, although *microscopic* anatomy could scarcely be said to have any existence, *macroscopic* anatomy was not so very much in arrear of what it is at the present day. That generation, and their predecessors, for nearly four hundred years had been enthusiastic dissectors of the human body, and in 1727 there was sufficient anatomical and physiological material to enable Hamberger to lay a sure foundation of respiratory mechanics in the celebrated essay which in that year he published. But to understand clearly the work done by him and since his time, it is necessary to glance briefly at the labours of the greater of his predecessors, and the investigations that up to his day had been made.

In those first writings in medicine—the works of Hippocrates—we find but a passing allusion to the respiratory mechanism, where he speaks in his book on the "Articulations" of the "cavities which inspire and expire the breath." A century later an attempt at a scientific theory of respiration was made by Aristotle, who taught that in the heart *heat* was constantly being produced, and as heat causes whatever it acts on to expand, the heat of the heart made the lungs that surround so much of its surface to expand in a very notable degree, so much so as to push outwards the thoracic walls, and so he said inspiration was effected; but the lungs being expanded cold air from without entered them, reducing the temperature, and so causing the lungs again to contract, and thus the return movement of expiration came about.

The views that Aristotle expressed on this and other biological subjects led, in that brilliant period of intellectual

activity, to considerable attention being devoted to human and comparative anatomy; and soon after his time Erasistratus discovered the connexion of the trachea with the lungs, and its use in the conveyance of air into them; and Herophilus discovered the pulmonary artery and the pulmonary vein, and their connexions with the heart and lungs, calling the pulmonary artery of modern anatomy the "arterial vein," and the pulmonary vein the "venous artery." Pondering over these new anatomical revelations, Erasistratus propounded a most ingenious theory of breathing. Still assuming, with Aristotle, that the lungs were caused to expand by heat generated in the heart, he said the air entered by the trachea into the lungs, and then found its way along the ramification of the air-passages to their ultimate terminal twigs, from which it passed into the minute terminal branches of the pulmonary vein—"venous artery," as he termed it—and thus was conveyed to the left side of the heart, to be by it sent into its own system of vessels, the arteries or air-ducts, to feed the textures of the body with vital spirits, which vital spirits in the tissues, meeting with the blood brought by the veins concocted with the blood, and by due concoction gave rise to bile, black bile, phlegm, and all other necessary animal products.

This theory of respiration was universally received for five hundred years, until exploded by Galen, for the anatomists during that long period made no special investigation of this department of the science. Marinus dissected in Rome in the century before Christ, Aretæus a hundred years after Marinus, and Ruffus of Ephesus again after Aretæus; but there is no record of their having done anything to elucidate further the phenomena of respiration, although undoubtedly demonstrations made by Marinus regarding the structure and functions of certain of the glands throw very valuable side-light on the subject. But in the second Christian century was born Galen. He made himself master of all that had been done in science prior to his time, and by dissection, experiment, and observation he added so much thereto that his position in medicine was, in the estimation of men for hundreds of years, scarcely second even to that of Hippocrates himself. In his writings for the first time we are taught that the increase and diminution of the thoracic cavity in respiration, are owing to movements of the thoracic walls due to muscular action, and not to expansion of the lung by heat, as was fancied by Aristotle. This correction by Galen was an enormous step in advance, and thenceforward nothing more is heard of the older view of the Greek philosophers. By Galen also for the first time were described the intercostal muscles in their two layers. To the external set he attributed an expiratory function, and to the internal an inspiratory function—a view of the matter that remained undisputed for fourteen hundred years, until in the sixteenth century it was modified, as we shall presently see, by Vesalius.

In the theory of respiration given to us by Erasistratus the arteries are described as carrying air only. Galen now showed that the arteries contained blood, were filled with blood. He seems to have believed that the arterial and venous systems equally received vital aerial spirits at the lungs—the one by the venous artery, the other by the arterial vein; and he supposed further that the arteries contained a purer blood than the veins, this purer blood being for the supply of the more important parts, such as the brain; and he also taught that the arterial and venous bloods were confined for the most part to their respective systems of vessels, but that a communication or mingling of them to a limited extent took place through the muscular septum of the heart; and his imagination was strong enough to show him pores in the cardiac septum through which the blood passed from the one side to the other; and this power of imagination became hereditary, for all the anatomists who succeeded him saw these pores for fourteen hundred years, until Vesalius showed that such did not exist. In spite of errors that at the time in which he lived were inevitable, his labours form an epoch in the history of medicine; in anatomy and physiology, especially, the advances made by him were great, and doubtless he expected that those coming after him would rapidly improve on what he had done. But the spirit of scientific research became for the time extinct with Galen, and for nearly a thousand years no one made any additions to our knowledge of anatomy or physiology, whether human or comparative. During this dark period the Arabians alone retained some slight relish for scientific subjects. They preserved, and in their own way revered, the writings of Galen and Hippocrates; but their minds were chiefly given to the study of astrology and alchemy, and endeavours to find the philosopher's stone and the elixir of life. These matters were what chiefly engrossed the attention of the scientists of Bagdad. But in the eleventh century there came to Bagdad a stranger from Carthage, in Africa, who, in the Arabic metropolis, for thirty years studied diligently all that was known of the sciences in general, and medicine in particular. This student, Constantine, subsequently found his way to Sicily; carrying back with him to the west the learning which the Arabians had originally obtained from it, and in the medical school of Salerno, that had been founded in the seventh century by Benedictine monks, he became a diligent teacher of medicine. He was the author of two medical works that were printed five hundred years afterwards, and of which the Faculty library possesses copies in excellent preservation. The seed of knowledge he sowed in Sicily did not immediately bear fruit, but it did not die, for after a germination period of fully three hundred years it resulted in the revival of anatomy in Europe by Mundinus, who was professor in Bologna in 1316, who made dissections of the human body, and who began those demonstrations to students in practical anatomy that have been continued down to the present day. He wrote a book on the subject that afterwards, in 1478, was printed in Pavia, and which, so far as I can make out, was the second medical work ever printed, and of which I am sorry to say our own library has not a copy. The University of Glasgow possesses a copy of the first and of several succeeding editions. This book, in transcriptions at first, and subsequently in print, became the general text-book of anatomy, and from his time onwards in most universities in every session dissections were made and the parts demonstrated according to Mundinus. This author did nothing for the anatomy or physiology of respiration, and seems to have attached but little importance to the investigations of Galen regarding the intercostal muscles. For about a hundred years anatomy remained as Mundinus left it, until towards the end of the fifteenth and the beginning of the sixteenth centuries important contributions were made to it by De Zerbi, De Carpi, Achillinus, and Montagnana. As directly bearing on respiration, the labours of these men amounted to little, except in the case of De Carpi, who in 1518 discovered the tricuspid valves and the semilunar valves at the origin of the pulmonary artery. In 1536 Charles Etienne discovered the valves of the veins.

In the year in which the work of Mundinus was first printed (1478) was born one of the most celebrated of the anatomists of the period of which I am now speaking—James Du Bois Sylvius, who became professor in the College of Tricquet, founded in Paris by Francis I., and in it taught anatomy with an enthusiasm and success far beyond that of any of his predecessors. He published two works that in their day attracted much attention, and he also took part in a disputation with his greatly celebrated pupil Vesalius. The Faculty possesses his publications in the form of a quarto volume, published at Geneva in 1630.

Contemporary in anatomical work with Sylvius, although in age twenty-six years his senior, was a man who in another walk of life attained to the foremost rank of fame—Leonardo da Vinci. He made many dissections, and of these he made drawings to illustrate demonstrations on anatomy by Marco Antonio della Torre, who was professor at Pavia. These drawings, which are in red chalk and touched up by a pen, were in the time of Pilkington in the possession of George the Third; and in 1790 some of them were engraved and published in London by Joseph Chamberlain. Our library has no copy of this.

In 1514, at Brussels, was born the greatest of all the anatomists of this period—Vesalius. He studied anatomy in Paris under James Sylvius. He possessed great mental originality and daring, and was the first who had the courage to differ in some important matters from the teaching of Galen, whose word on all points on which he had spoken until then was regarded as infallible. So able were the observations made by Vesalius, and so famous did he become, that he excited the jealousy and animosity of his master, Sylvius, who controverted the new views, arguing that all was true that Galen had taught. This celebrated discussion had reference chiefly to the structure of the sternum, the bones of the arm, the presence or absence of pores in the cardiac septum, and the action of the intercostal muscles. He was a most accurate dissector, and especially did he give great attention to the muscular system. In 1535, and again in

1543, he published a series of anatomical plates, that were drawn for him by no less a personage than Titian, who, like Da Vinci, was an accomplished anatomist. Our Faculty library has no copy of these early editions, but has one edited by Boerhaave and Albinus, and printed in 1725.

In these writings, after a lapse of fourteen centuries, the views of Galen regarding the actions of the intercostal muscles were called in question. Galen taught that the external layer was expiratory, and the internal layer inspiratory. Vesalius objects to this, and says both are inspiratory, and act simultaneously. But his idea of their action is certainly far from clear, for he says they act by drawing the contiguous ribs towards one another, the external layer drawing the lower of two ribs towards the one above it, and the internal layer drawing the upper towards the lower. Between the costal cartilages he also supposed there were two layers of muscular fibres decussating with one another, and of these he says the external layer draws the higher cartilage to the lower, and the internal the lower to the higher.

Following Vesalius came his pupil Fallopius, who in Pisa was professor of anatomy for many years. His observations were extremely accurate, and he corrected many of the errors of his predecessors. Among others, he first showed that between the costal cartilages there is but one layer of muscular fibres, and not two, as until then had been supposed. He published two important anatomical works in 1561 and 1571, and of these the Faculty has a reprint dated 1600.

In the time of Fallopius there lived a man who in an erratic way gave considerable attention both to theology and medicine—Michael Servetus, a native of Aragon, born in 1509. In a very extraordinary book, entitled "Christianismi Restitutio," that he published in 1553, he for the first time gave a true account of the circulation of the blood through the lungs, asserting that all the blood passed from the right to the left side of the heart by a long and marvellous course through the lungs. This great discovery, however, received then but little attention, and as he had given utterance to some religious opinions that Protestants then deemed heterodox, Calvin burned both him and his book at Geneva, where he had incautiously come, although previously warned to keep as far from the clutches of that religious reformer as he possibly could.

Contemporaneous also with Fallopius, who taught at Pisa, was the great Eustachius, who was professor at Rome. Most comprehensive and precise were his dissections, and his descriptions of them. In 1563 he published his "Opuscula Anatomica." In this work, that was held in great esteem, he speaks of a large series of drawings he had made, and was engaged in engraving with his own hand on copper. At his death, to the great regret of all, these could not be found, and they remained lost for 150 years, when they were discovered, and under the editorship of Lancisi, physician to Pope Clement XI., were for the first time published in 1714. Of this celebrated first edition the Faculty library has a copy in splendid preservation. An examination of these plates shows that, with the exception of the lymphatic system, Eustachius was, in the middle of the sixteenth century, almost as well acquainted with the leading points of the ordinary anatomy of the body as we are at the present day, and more especially was his knowledge of the muscles, and many of their actions, wonderfully accurate; the intercostal muscles he represents most truthfully. It was not, however, until 1597 that the muscles generally received from Gaspard Bauhin the names by which they are known to us. Until then they were chiefly spoken of as in layers and pairs, each of these layers and pairs having a special number.

So thoroughly had Eustachius and his contemporaries of the sixteenth century and their predecessors investigated and described human microscopic structure, that in the following hundred years almost the only additions made to anatomy were the discovery in 1621 of the lacteal vessels by Asselli, and the thoracic duct and general lymphatic system by Picquet in 1654. So very complete, indeed, had this science become, that the "Institutes of Anatomy" by Caspar Bartholinus, published in 1611, continued to be the general text-book of the subject until 1693, when it was pushed out of the field by a new work by Philip Verheyen.

By the labours, then, of the distinguished men of whom I have spoken, continued during hundreds of years, the science of anatomy by the beginning of the seventeenth century was so advanced as to afford materials for the foundation of a rational and exact system of physiology; and soon by a master hand was laid the corner-stone, for in 1619 Harvey announced his discovery of the circulation of the blood.

From this time the various physiological actions received very special consideration, and the mechanism of respiration soon engaged the attention of three of the most eminent members of the profession in the century of Harvey—namely, Thomas Willis, John Alphonsus Borelli, and John Mayow. Thomas Willis was a native of Great Bedwin in Wiltshire. He studied medicine in Oxford and practised his profession in that city, and subsequently was appointed Sedleian professor of natural philosophy in the university. His medical writings are numerous and important; more especially is he

FIG. 1.

remembered for his great work on the nervous system. But he also made a most important contribution to respiratory mechanics, for in his Pharmaceutice Rationalis, printed in 1673, he, for the first time, advocated the view that the external intercostal muscles are inspiratory, and the internal expiratory, which led in the following century to the famous discussion between Hamberger and Haller.

At Castlenuovo, in Naples, was born, in 1608, Borelli, who became an accomplished mathematician and physiologist, and employed mathematical principles and reasoning in explaining the functions of the animal body. In 1656 he became professor at Pisa. He published many works, the most celebrated, "De Motu Animalium,"

FIG. 2.

being printed in 1680, the year after his death, at the expense of Queen Christina. In this treatise for the first time is explained, with anything of scientific exactitude, the manner in which by elevation of the thoracic walls the internal capacity is increased. Here I reproduce a drawing that he gives in explanation of this. (Fig. 1). He represents the costal arch as articulating with the spine, the upper angle of articulation, A, being more, and the inferior angle, B, less than a right angle; and he argues that necessarily on the arch, A, B, C, being elevated towards a right angle, the antero-posterior diameter is increased. He enunciated this pretty much in the following manner:—1st. If in two extremities, A and C, the

semi-elliptical arc, A, B, C were fixed to the wall F H; if the arc were drawn upwards to the perpendicular, from B to E, then E has more receded from the wall than B. 2nd. If (Fig. 2) of several semi-elliptical arcs the extremities A, D, H are fixed to the firm column P S, and the extremities C, E, I to the immovable wood, Q R, and the planes of the equidistant arches form acute angles with the plane P R; if the apices of the arches, B O M, are drawn in the direction M R, so that the acute angles become more obtuse, the semi-cylindrical cavity, A, B, C, I, M, H, is made greater. That anatomists until his time had most obscure views of this matter is beyond doubt, for in the general text-book of anatomy then in use, that by Caspar Bartholinus, published in 1611, and in which the author evidently supposes (although erroneously) that he gives the views of Vesalius, he says of the external intercostals that by elevating the thoracic walls they constringe the chest, producing expiration, and the internal intercostals widen the intercostal spaces, and produce inspiration. Borelli certainly, for the first time, gives a rational explanation of the effects of elevating and depressing the chest walls. As regards the intercostal muscles themselves, he supposed both layers to be *inspiratory*, and never *expiratory*.

ON THE

INVISIBLE CORPUSCLES OF MAMMALIAN AND OVIPAROUS BLOOD, AND THEIR RELATION TO FIBRIN FORMATION AND COAGULATION.

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(*Concluded from page 431.*)

THE question as to whether the blood of the ovipara possesses a corpuscle which is the analogue and equivalent of the invisible disc of the mammal blood has received at my hands a great amount of attention. I have examined the point not only in the blood of batrachians, but in that of fishes and birds, and I have arrived at the conclusion that in all ovipara a corpuscle exists which corresponds precisely, in its anatomical characteristics, in its developmental position, and in its disintegrative modifications, with the invisible disc of the mammal blood. Such bodies will be found to be treated of in my work on the "Physiology and Pathology of the Blood," sections xi. and xii., p. 184, under the head of Colourless Nucleated Ellipsoids, and it is there explained that these are the analogue of the advanced lymph, splenic, and bone-marrow corpuscles, and therefore of the invisible colourless discs, of the mammal. I have also pointed out that these bodies may be seen developing in the spleen and bone-marrow of the ovipara as their obvious products.

At the time Professor Legge wrote his memoir I do not think he could have read my second letter in THE LANCET in reply to Professor Bizzozero, and certainly he could not have seen my book, in which I have shown that all the conditions of error to which he refers have been avoided. It is unnecessary to follow this author into the question of the effects of water or water-vapour upon the blood-corpuscles; they are well known, and have been fully treated of in my work, and their influence has been absolutely excluded from all my experiments. I should never have dreamed of using to dilute blood in which I desired to make a demonstration any artificial solution whatever, not even the so-called physiological solution used by Professor Legge, which I presume to be a three-quarter per cent. solution of sodium chloride, a solution which I have found to be very active in decolourising mammal discs. Every physiologist knows that the serum of one blood will dissolve the corpuscles of another, and surely with such a fact before us we should refrain from adding any foreign solutions to the blood. The bodies which Professor Legge has seen in the oviparous blood, which he has taken from the moist skin of the animal, or after the addition of water or of his physiological solution, are, as he truly states, nothing more than decolourised red corpuscles; but they have nothing in common nor anything to do with the invisible oviparous corpuscles (the existence of which in oviparous as in mammal blood I am the first to make known).[1] In order to demonstrate the existence of the invisible corpuscle of the mammal or of the ovipara, the blood should be examined immediately after it is shed, and without the addition of any foreign liquid whatever to it, and as an additional security it should be taken, not from the moist skin, but from the left ventricle of the heart. If under these conditions persons fail to find these bodies, it will be because they have not acquired the necessary technical skill which springs from prolonged study of a subject, and which experiment and trial can alone furnish them with.

The elements which Professor Legge has seen in oviparous blood, and which he believes to be analogous to my invisible discs in mammal blood, are, as I have before stated, corpuscles which he has decolourised by his inadmissible methods of investigation. The real invisible corpuscle is, of course, neither to be seen either in the circulating blood or when that blood is shed, but is capable of being rendered obvious by various indirect methods, which do not and cannot involve decolourisation of red corpuscles; and, further, red discs or oviparous corpuscles, which have been purposely deprived of their hæmoglobin, can readily be distinguished by certain definite characteristics which they possess from the true invisible disc or corpuscle. To the statement of Professor Legge, that the invisible corpuscle cannot escape observation in the circulating blood on account of its excessive delicacy, "because when we are forewarned it is possible to observe a detail, however delicate," I entirely demur. This might be true of a body or of details which could barely be seen, or be seen only with great difficulty, but it is absolutely inaccurate in the case of elements or substances, which have precisely the same colour and refractive index as each other. The material which forms the invisible mammal disc and the invisible cell body of the oviparian corpuscles cannot be seen by the most careful management of lenses and illumination, neither can it be photographed[2] either in the circulating blood or when this has been shed, and yet, being substantive, can be rendered obvious by packing other highly plastic bodies, such as their fellow red corpuscles, around them; but, as I have elsewhere pointed out, this can only be done when they have effected adhesion to the slide, for under other circumstances their limpid, liquid, flowing character is so marked, and the shapes they take on so protean and multiform, that they cannot be detected from pure liquid matter. Under these circumstances other and unobjectionable methods are open to us, of which I will shortly speak. Because, therefore, we cannot see these corpuscles in the circulating blood of the mammalia or ovipara, we are not justified in assuming their absence, for if they could be seen our position respecting their nature would be vitiated. We shall, in fact, never see them in the circulation, unless some staining agent can be found which, when introduced, affects them preferentially and leaves the red discs uninfluenced, or unless certain pathological changes of the blood reveal them by rendering them granular or altering the relative refractive indices of the corpuscles and liquor sanguinis, or unless some exceedingly fine deposit can be introduced into the blood which will adhere to them; or it may be that they may ultimately be observed inside the vessels, by bringing about packing in small capillaries, but this is scarcely likely, for unless, as I have previously pointed out, they adhered to the walls of the vessels, their circular shape would not be retained. What can, however, be observed in the circulating blood, both of the mammal and of the ovipara, is that the red discs are not all of one standard degree of colour, and that some are so pale as scarcely to be visible. Such pale corpuscles of course cannot be said under these conditions to have lost their hæmoglobin by manipulation or moisture, and the inference is warranted that such corpuscles are either gradually losing or attaining colour in the circulation, and, in either case, such a state of things would lead to the assumption that there were corpuscles in the blood too pale to be seen. Of course, it may be argued that the corpuscles do not necessarily attain to a given standard of colour; but it must be admitted that this is most likely to be the case, and if the corpuscles do acquire colour gradually in the blood, the whole case is made out; for as some are scarcely visible, there must then be also a colourless and invisible stage. We see therefore how illogical is the assumption that because these bodies cannot be seen in the circulation they are therefore absent. If

[1] Physiology and Pathology of the Blood, p. 182. (Smith, Elder, & Co.)
[2] Bodies which cannot be seen may, notwithstanding, frequently be revealed by photography.

conditions could be obtained in the circulation similar to those which can be obtained externally, they would be equally obvious.

It is, of course, most desirable to possess absolute proof of the existence of these bodies in the circulating blood, because the question of the normal existence of the invisible corpuscle would then be completely set at rest, and the various theories as to loss of hæmoglobin by visible corpuscles for ever disposed of. Fortunately, although this cannot be had at present with the invisible disc of the mammal, it can be obtained in the case of its analogue and equivalent, the invisible corpuscle of the ovipara; for while the cell-body of this corpuscle is absolutely invisible both in the circulation and outside the vessels, its nucleus can be far more easily seen than that of its fellow, the red corpuscle, under either of these circumstances; and therefore all we have to do is to identify this nucleus in the circulation, which here appears to be altogether free, and having ascertained that by no means at our command can we detect the slightest indication of a cell-body in connexion with it, we can again examine the same blood when shed, re-identify the nucleus, and again assure ourselves that we are unable to see the cell-body, although around some nuclei of a precisely similar appearance we can recognise a barely visible cell-body, and around similar nuclei other more strongly-tinted cell-bodies, which form the link between these and the ordinary full red corpuscles. Now, observe, we have here exactly the converse of a case of decolourisation. In the circulation and outside it we have certain oval or elliptical nuclei, which are granulated and highly refractive, and which we have not the least difficulty in identifying, either within the vessels or outside them, and the cell-body of which is absolutely invisible under both conditions, and so limpid and liquid-like that it offers no obstacle whatever to the pressure exerted by any other corpuscles allowing such to come into contact with its nucleus; in fact, behaves to all appearance like a free element, for which indeed it has always been taken. Now we will render this cell-body and the fibrin which it gives rise to (for it is the true fibrin factor of oviparous blood) obvious by a simple experiment, in which no pressure, no manipulation, no violence, no moisture, or solution of any kind is involved. Place upon a slide a drop of alcoholic solution of magenta, spread it with a glass rod, and allow it to dry thoroughly; you have now a delicate layer of magenta pigment. Place a drop of the blood intended for examination upon the cover-glass, and lower it very gently upon the slide; if this is not done gently, all your delicate cell-bodies will be converted by the motion into fibrin. In a little while the blood liquid will dissolve some of the magenta; the delicate cell bodies around the nuclei remain unstained, but the stained liquid around them and in contact with the slide differentiates them by contrast: the nuclei themselves become stained; the red corpuscles and their nuclei, even the palest visible kind, remain unaffected, or if affected at all the nuclei of the very palest become stained to a slight degree, thus affiliating themselves to those of the invisible ones. Nothing has been added to the blood calculated in any way to alter the red corpuscles; nor are they altered, not even stained by the magenta, for the amount of magenta dissolved by the blood liquid is either too inconsiderable to colour the red corpuscles, or is absorbed as rapidly as it is dissolved into the serum by the nuclei of the invisible corpuscles. In the ovipara, therefore, all the bodies which can be seen in the circulation can also be seen externally to it; but one of these can be shown to possess a cell-body, which is neither visible before or after the blood is shed, till brought into view by appropriate means. The blood of the triton and salamander, in fact of the ovipara generally, contains in the shape of morphological elements—1. Red nucleated corpuscles, which exist in various grades of colour, from very pale scarcely visible ones to full red. 2. Ordinary white corpuscles, which, being derived from the primary lymph, splenic, and bone-marrow corpuscles, contain one or several nuclei, and which correspond to the white corpuscles of the mammal. 3. Free shed nuclei of the above white corpuscles, which correspond to the shed nuclei of the white corpuscles of the mammal, which give rise to the invisible discs connected with its minor mode of development. These shed nuclei in the ovipara are nucleolated, and develop into red corpuscles through the stage of Hayem's corpuscle (so-called oviparous hæmatoblasts). 4. Hayem's corpuscles (so-called oviparous hæmatoblasts), in their more developed state of visible oval nucleated corpuscles, free from hæmoglobin. 5. Elliptical nuclei (apparently quite free), which belong to the invisible corpuscles of the ovipara, which correspond to the invisible corpuscles of the mammal, and, like them, are derived from the spleen, lymphatics, and bone-marrow. I have verified these results on the triton, fish, fowl, &c. The body which corresponds to the primary lymph disc of the mammal, and therefore to the blood-plates of Bizzozero, is a smaller nucleated body which comes over in small quantity into the blood from the lymphoid organs and develops in the blood, first into the uni-nuclear, and secondly into the multi-nuclear varieties of the white corpuscle. The greater number of these bodies yield by capsular disintegration free nucleolated nuclei, which, growing in the lymphoid organs, pass into the blood as the fully-grown, colourless, nucleated ellipsoids.[3] This is what I have designated the major mode of development in oviparous blood, the minor mode being, in adult life, that described by Hayem and Pouchet. All this is made plain in Table I. and Plate 20 of my work.

There is a perfect analogy between the development of mammalian and oviparous blood—they both begin their career in a primary lymph corpuscle, the direct mode of development in which sets free a nucleus, which is simple in the mammal but nucleolated in the ovipara. In the former, this nucleus passes into the blood, becomes its invisible disc, and ultimately gets colour, and shows itself as the pale red disc; in the latter case, the nucleolated nucleus grows in the lymphoid organs, and having attained a certain size enters the blood, becomes invisible so far as its cell-body is concerned, while the nucleus remains visible; this body gradually attains colour, and presents itself as the palest order of oviparous corpuscles; this is the major mode of development. In addition to this, it happens that a few of the primary lymph corpuscles come over into the blood before they have undergone their usual development in the glands; these develop into white corpuscles, the nuclei of which are shed, and in their turn develop into red discs or oviparous red corpuscles, as the case may be. Hayem's hæmatoblast (so-called) is the intermediate stage of this process in the ovipara. The corpuscles of the ovipara, like those of the mammal, are divisible into a fugitive and permanent group, and the changes which occur in the fugitive group in this case also yield the fibrin and determine coagulation.

The identity of the corpuscles seen by Bizzozero and the invisible discs rests in the fact that they both represent stages in the development of one and the same body; they are identical in the same sense as the boy and the man, and in no other; that is to say, the primary lymph discs are developed into the invisible discs. Now that the existence of the invisible disc of the mammal has been verified by so many observers, its opponents are driven to take refuge in the facile hypothesis that it is a decolourised red disc, and they are content to make this assertion without noticing, much more disproving, the many facts which I have brought forward to show the contrary. At a very early period I proved that these corpuscles were the producers of fibrin, and a recent writer[4] has by the use of my methods verified this conclusion, at the same time adhering to the view that these corpuscles are decolourised discs. This paper has been reported upon and its conclusions endorsed by no less an authority than Professor Klein;[5] hence both writer and reporter are committed to the opinion that coagulation and fibrin formation are due to changes in decolourised red discs.

Few physiologists will be disposed to accept this view and its consequences. Again, on those who deny the existence of the invisible colourless discs of the mammal rests the responsibility of discovering the equivalent and analogue of the invisible corpuscle of the oviparous blood, the presence of which can be demonstrated in the circulation owing to the fact that it possesses a visible nucleus. The latter corpuscle is without doubt a true constituent of

[3] Although usage makes it convenient to speak of the oviparous corpuscle as a cell, and sanctions the phrases cell-body, nucleus, &c., it must never be forgotten that its mode of development shows it to be in reality a nucleolated nucleus, which has been shed by a true cell. In both mammals and ovipara the hæmoglobin is associated with nuclear matter, and in both cases the same nuclear matter before it becomes converted into hæmoglobin is the source of true fibrin. All red blood corpuscles therefore are modified nuclei, which in the case of the mammal are simple, but in the ovipara nucleolated; hence there is no breakdown in the analogy as generally supposed.

[4] Note on the Formation of Fibrine, by Mrs. Ernest Hart. Quarterly Journal of Microscopical Science, July, 1882.

[5] Medical Record, July, 1882.

normal living blood, and its fibrin factor when shed; and the mammal blood ought to, and does, possess its counterpart, and if this is not the invisible mammal disc it still remains to be discovered. In his third special morphological element Professor Legge has confounded together several distinct bodies, and as a consequence he has noticed inexplicable variations; thus he can occasionally stain up a nucleus, but generally not. In the former case he is dealing with the so-called oviparous hæmatoblasts of Hayem, which may exist either in the circular or fusiform state, and in the other with the nucleus of the invisible corpuscle. There are, in fact, in oviparous blood, no less than four colourless elements instead of, as supposed by Professor Legge, two only: 1. The uni-nuclear and multi-nuclear white corpuscles. The former in its least developed state corresponds to the primary lymph disc of the mammal; the latter to its ordinary white corpuscle. 2. The liberated nucleolated nuclei of the white corpuscle. 3. The so-called oviparous hæmatoblasts of Hayem, which correspond to the invisible disc yielded by the white corpuscle of the mammal, which is body No. 2 in a more developed condition, often possessing considerable colour before it is much grown, or markedly ovoid in form. 4. The invisible nucleated ellipsoid furnished to the blood, in a perfect state as to size and form, by the lymphoid organs. This corresponds to the invisible disc yielded by the lymphoid organs of the mammal, and like it becomes gradually coloured in the blood. In addition to the elements above enumerated are the ordinary coloured elements of the blood, which present all gradations of tint. The morphological elements of oviparous blood may therefore be regarded as five in number. The special element of Professor Legge includes three bodies: 1. The earliest or uni-nuclear state of the white corpuscle. 2. The liberated nucleolated nuclei of the white corpuscle, and its more developed forms, the so-called hæmatoblasts of Hayem. 3. The nuclei of the invisible oviparous corpuscles. As Professor Legge does not mention the important researches of Hayem and Pouchet in connexion with these colourless elements, I presume he is unacquainted with them.

CONCLUSIONS.

I. The corpuscles recently observed in the circulating blood of the lower mammals by Professor Bizzozero, and called by him "blood-plates," are not newly discovered bodies, having been previously described by Professor Gulliver in 1846, and later in 1872 by Professor Hughes Bennett, and more fully by myself in 1878 under the designation of "lymph discs." I have also shown that this corpuscle possesses its fibrin-forming powers by virtue of being one of a series of corpuscles which I have distinguished under the title of the "fugitive group," some of which are visible and others invisible in the blood. Of this series of corpuscles it is the earliest, and the one which yields the smallest amount of true fibrin, contributing more to the substance of the clot by furnishing granules, which adhere to the true fibrin and assist mechanically in the production of fibres, than in any other way. The true fibrin is not deposited, as usually held, from the liquid of the blood, but is the viscous, slimy, glairy, transparent material furnished by the fusion and coalescence of the more developed corpuscles of the group—viz., by the invisible, colourless, and barely visible, slightly coloured discs, which after the blood is shed undergo conversion into the well-known fibrin forms.

II. The elliptical corpuscles of the ovipara, like the discs of the mammal, are divisible into a permanent and fugitive group. The latter includes those ellipsoidal corpuscles the nuclei of which alone can be seen, and the cell-bodies of which are invisible both while the blood is circulating and after it has been shed, and also a few of those corpuscles the outlines of which have become visible by the delicate tinting of their cell-bodies with hæmoglobin. It is the cell-bodies of these corpuscles which furnish the true fibrin—i.e., the material which gelatinises when the blood is shed. As in the case of the mammal blood, these corpuscles are the product of a gradual development of a colourless element which can be traced back as far as the spleen, lymphatics, and bone-marrow, and which is the true analogue of the primary lymph disc, from which all the morphological elements of mammal blood are directly or indirectly derived. This parent colourless element of oviparous blood, therefore, corresponds to the so-called blood-plates of Bizzozero.

III. In his recent investigation, Professor Legge, having overlooked the invisible cell-body of the transparent, colourless ellipsoid of the ovipara, has seen its nucleus both in the circulating blood and in blood removed from the vessels, and has described it as an independent body and the analogue of the plates of Bizzozero, never dreaming (as well he might not, for no one unacquainted with the analogies of development in mammal blood would be led to look for it) that there existed around, and enclosing it, an unseen cell-body as large in most cases as that of the full-grown red corpuscle. No stronger proof could be afforded of the truth of my views than such an oversight, or of the incorrectness of Professor Legge's statements that no objection can be made to his conclusions "on the ground of excessive delicacy, because when we are forewarned it is possible to observe a detail, however delicate." Professor Legge has unwittingly demonstrated the truth of the position as to the absolute invisibility of these corpuscles under the conditions in which they normally exist.

IV. With the well-known fact that water or aqueous solutions will remove the hæmoglobins from the red corpuscles and render them so pale as to be scarcely visible I have nothing whatever to do. These conditions are never present in any of my experiments, in addition to which there exist unmistakeable characteristic differences, which enable the technically educated to distinguish at once between decolourised corpuscles and such as have never possessed hæmoglobin.

V. Although the invisible disc of the mammal has not yet been detected in the circulating blood, its equivalent and analogue in the lower vertebrata is, under these conditions, readily demonstrated; for, notwithstanding that its cell-body is as invisible as the mammal disc, its nucleus is distinctly visible, and forms the means of its identification both within and outside the vessels, and the problem before us is precisely the reverse of one of decolourisation, for we have to bring into view, around a body which in the circulation and outside it presents itself and has been described as a free colourless element, a cell-body having the size and form of the cell-bodies of the ordinary red corpuscles, but devoid of hæmoglobin. Of the existence of the invisible corpuscle of oviparous blood we have therefore the crucial evidence furnished by its detection in the circulation.

THE TREATMENT OF DEFLECTION OF THE NASAL SEPTUM.

BY W. J. WALSHAM, F.R.C.S.,

ASSISTANT-SURGEON TO, AND DEMONSTRATOR OF PRACTICAL AND ORTHOPÆDIC SURGERY AT, ST. BARTHOLOMEW'S HOSPITAL; SURGEON TO THE METROPOLITAN FREE HOSPITAL; ETC.

THE treatment of deflection of the nasal septum, judging from the cursory way in which, even if mentioned, it is dismissed in the text-books and other works on surgery, does not seem to have received much attention from surgeons. This may in part be ascribed to the deformity being held as trifling. No doubt the mere bending of the septum to one or other side, and the slight lateral deviation of the nose which commonly accompanies it, are not in themselves very grave inconveniences, and were it not that the more or less complete blocking up of the nostril on the side to which the septum is deflected is apt to be followed by a train of very unpleasant symptoms, need not call for surgical interference. The symptoms most commonly complained of when the deformity has existed for some time are the disagreeable nasal quality of the voice, the stuffy feeling in the nose, the constant recurrence of colds in the head, and, when the lower part of the septum is affected, the unsightly red prominence visible just within the nostril. If the deviation is extreme, the symptoms are more distressful. The complete blocking up of the affected nostril may set up a chronic nasal catarrh, and this, together with the pressure of the bent portion of the septum, may cause obstruction of the frontal sinuses, nasal duct, or antrum of Highmore. Hence the dull pain or sensation of weight in the forehead, the running of the tears over the cheek, or, in extreme cases, dropsy of the antrum. Or the chronic catarrh may spread to the naso-pharynx and involve the orifice of the Eustachian tube, giving rise to deafness or noise in the ears. In one patient under my care the chief inconvenience was the peculiar noise made while eating, which rendered it, his parents said, most unpleasant to sit with him at table.

In two cases, one under my own care and one under the

care of my colleague, Mr. Butlin, complete occlusion of one nostril had been produced by the adhesion of the deflected portion of the septum to the side of the nose, an adhesion apparently following ulceration of the adjacent surfaces induced by mutual pressure. In the first of these patients the nasal quality of the voice was especially marked, and considerable redness and œdema, probably due to obstructed venous return, existed at the junction of the lateral cartilages and the nasal bones, giving the lad the appearance of having recently had a blow upon the nose. Severe pain and frontal headache referable to the obstruction of the frontal sinuses were also complained of. The deflection is generally (in all the cases but one that have come under my notice—eight) the result of a blow or fall upon the nose, and is limited to the cartilaginous portion of the septum. It may, however, be congenital, and affect the bony part as well as the cartilaginous. Indeed a slight lateral deviation of the bony septem to one or other side of the middle line is, one may say, of almost normal occurrence, but is of course not attended with any inconvenience. Deflections may also occur in consequence of pressure from polypi, but to such the present remarks do not apply. When the result of accident, it is nearly always attended with some external deformity of the nose, generally a slight leaning to one or other side; in some instances, however, the lateral cartilages, in addition to a lateral deviation, are either depressed at their junction with, or partially dislocated from, the nasal bones, giving the nose an unpleasantly marked *retroussé* appearance. A dislocation of the septal cartilage from the anterior nasal spine to one or other side may also accompany the deviation. The affection is readily recognised. On looking into the nose a red fleshy mass may be seen partially or completely, according to the severity of the case, stopping up one nostril; whilst in the other there is a depression of the septum corresponding to the projection on the opposite side. The affection has been mistaken for a polypus or growth from the septum; but this can hardly happen if the precaution be taken of looking into the opposite nostril, or, when the deflection is high up, of searching for the depression with a bent probe.

The earlier operations undertaken for the remedy of the affection seem of a severity disproportionate to the inconveniences they were intended to relieve. Thus the nose has been split in the middle line, or the ala detached from the cheek, and the deflected portion of cartilage exposed by one of these means cut away. Chassaignac modified these procedures by performing what he calls subperiosteal resection. He made an incision along the lower border of the columnella, reflected back the mucous membrane from the septum, and shaved off successive pieces from the projecting portion until a sufficient suppleness was attained to allow it to be forced back into the middle line. He then reapplied the mucous membrane, and introduced a sponge into the nostrils to keep the parts in their new position. Blandin cut out a portion of the deflected part by means of an instrument somewhat resembling an ordinary leather button-hole punch. Zuprecht speaks in high praise of this method of removing the obstruction, and relates several cases in which it was successful. Dr. Goodwillie also recommends punching out a piece of the septum, and has had an instrument, a modification of Blandin's, made for the purpose, which he calls excising nasal forceps. Dr. Glasgow, of St. Louis, however, condemns the proceeding, affirming that it is liable to be followed by depression of the nose in consequence of the nasal cartilages falling in from want of the support of the septum; and that the nasal secretion, especially in scrofulous subjects, is apt to hang about and scab over the edges of the hole. No doubt when large portions of the septum are removed there is a tendency, as is seen in disease, for the nose to fall in. But this is not the case when the perforation is small. All must be cognisant of instances in which even a very considerable communication exists between the nostrils, and yet there is no deformity whatever. I have at the present time two cases of perforation of the septum from syphilis under my care in which two fingers could be passed through the perforation, but still no external deformity exists. Nor is there any other trouble experienced in consequence. But the removal of a very small portion of the bent cartilage suffices to restore respiration through the affected nostril; and when granulation has taken place, a still less aperture remains—much too small to induce any falling in of the nose. As a rule, however, it is not necessary to perforate the septum. Forcible straightening, and then keeping it in position by means of retentive apparatus, will suffice. The forceps devised by Mr. Adams have in my hands answered admirably for the purpose. If there is any lateral or other deviation of the lateral cartilages, this can also be remedied at the same time as the septum is straightened by forcible manipulation with the forceps. Having straightened the septum and rectified the faulty position of the cartilages, these parts are well held in place by Mr. Adams' screw retentive apparatus. This little instrument, which consists of two lateral steel plates adjusted by a screw, can be worn for two or three days with little or no discomfort; and on its removal ivory plugs, properly shaped to the cavity of the nose, can be substituted for another week or two till the septum has been fairly consolidated in its rectified position. I have found the retentive apparatus as devised by Mr. Adams apt to produce ulceration of the lower part of the columnella in consequence of the pressure of its arms. This I have overcome by a slight modification in the form of the instrument—viz., by having the arms made a little longer, and with a lateral outward bow, so that when placed in position they do not touch the columnella. I have rectified six cases by these means, and in all except one, where there was great resiliency, with good results. The septum retains its median position, and nasal respiration in the affected side is free. When the cartilage is too resilient to be kept in its place, a portion of the bent part may be cut out by one of the forms of punch, or by the instrument suggested by Dr. Steele of St. Louis, which is a modification of the forceps of Adams and Blandin. It consists of a stout forceps shod on one blade, with knives set in a stellar form; the two blades are united, after the manner of obstetrical forceps, to facilitate the introduction of the instrument, and the cutting-blade is covered by a thin sliding shield, to protect the nostril during the introduction. With this little instrument a stellated division can be made through the mucous membrane and cartilage, and the divided septum be forcibly pushed into the middle line, and kept in position by retentive apparatus. Dr. Steele says that he has operated on two cases in this way with perfect success. The advantages claimed are, that perforation is avoided, and the resilience overcome by allowing the stellated divided cartilage to overlap. But the punch of Dr. Steele, like all instruments of the sort, is open to the objection that it causes more or less bruising of the soft tissues, and wounding of the mucous membrane on the sound side, and, should sloughing and necrosis follow, produces what it is intended to prevent. To obviate this I make the stellar division subcutaneously—i.e., insert a small knife, which I have had made for the purpose, under the mucous membrane, with the flat of the blade to the septum, and after moving it to and fro so as to detach the soft tissues from the cartilage turn the edge to the septum and make in it a stellar or other division. By this means all the advantages of Dr. Steele's stellar incision are gained without crushing or wounding the soft parts, except at the point of entrance of the knife, or wounding the mucous membrane of the opposite side. If the cartilage yields before the knife, it may be supported by the finger or any blunt instrument introduced into the hollow of the deflection through the opposite nostril.

In a case where much resiliency was present, Mr. Smith tells me that he succeeded in overcoming it by shaving off the mucous membrane and several thin layers of cartilage, but avoided a perforation by leaving the mucous membrane untouched on the sound side.

In cases in which the deviation depends upon the dislocation of the septal cartilages from the anterior nasal spine and contiguous portion of the nasal crest, I have found forcible straightening to succeed. In a patient in whom such a dislocation seemed to have occurred the cartilage was bent into position with an audible snap. It was then retained in the way above described. Should this method not succeed, that suggested by Dr. Goodwillie might be tried—i.e., to deflect the mucous membrane and periosteum, and then excise the dislocated end of the septum. From the ease with which the dislocation was reduced in my own case, notwithstanding the length of time it had existed, I should imagine that the cutting away of the dislocated portion can seldom be necessary.

A DRUGGIST in Hull was last week fined £10, with costs, for "illegally selling paregoric in the preparation of which methylated spirit had been used." Defendant admitted the charge, but alleged that the offence was committed in error.

THE PATHOLOGY OF HEPATIC TUMOURS.

BY W. ROBERT SMITH, M.D., F.R.S. ED.

(Concluded from page 435.)

Carcinoma telanjiectodes is distinguished by the great development of the smaller bloodvessels of the stroma, which frequently rupture, causing more or less extravasation. These tumours contain a large quantity of blood, are of a bright vermilion colour, and very soft in consistence.

Colloid cancer of the liver, which perhaps it will be convenient to notice here, is always a secondary growth, occurring either metastatically to a similar growth in the stomach and intestines, or as an extension from the peritoneum. In the one case, the nodes are distinctly seen to have originally been ordinary cellular cancer; in the other, the advance of the growth from the peritoneum is seen to have been principally through the subserous lymphatics, which under the peritoneal investment of the liver and gall-bladder are found filled with gray transparent colloid material. It is very important to remember that secondary cancer of the liver repeats all the histological characteristics of the pre-existing primary tumour; but although in the general characters of their constitution the nodes agree, yet they differ widely from each other both as regards the stroma and cancer cells. For example, the stroma may be well developed, forming a large proportion of the entire nodule, or it may be present in such small quantity that the bloodvessels appear to course nakedly through the pulpy cell mass; the cells also show the greatest variety in their number, shape, size, and arrangement; the number and arrangement will of course vary with the amount and character of the stroma, and being an epithelial growth, the cells may present all those forms which epithelial cells assume. The bloodvessels form a more or less close network, which is supported by the trabeculæ of the stroma; it varies in size and compactness, and for the most part the finer vessels which compose it are newly formed. According to Frerichs, this network receives its blood-supply from the hepatic artery. The original portal network is lost; only the larger branches of the hepatic and portal veins remain, and even these are often compressed and obliterated; whilst, on the other hand, the branches of the hepatic artery become dilated.

As regards the histogenesis of secondary hepatic carcinoma there is of course the greatest variety of opinion. One observer believes the cancer cells are derived from the hepatic cells and the epithelial cells of the biliary ducts; another, that they arise in the endothelial cells of the bloodvessels; a third, that they originate in the cellular elements of the connective tissue; but most probably the germs which were previously cellular elements of the primary cancer have been carried to the liver either through the bloodvessels or lymphatics, and there continue an independent existence, dividing and subdividing, and by successive encroachments on the liver parenchyma displacing the normal tissue, thus forming the nodules with which we are so familiar, and which may or may not undergo one of the forms of degeneration I have described.

(*b*) *Melano-sarcoma.* — Until very recently pigmentary tumours of the liver were classed with the carcinomata, but Virchow pointed out very clearly that this was an error, and demonstrated beyond doubt that these growths were really sarcomatous. He proved that the cells of which these growths are composed were not of epithelial origin; and if we are to consider the epithelial origin of cancerous growths to be their one great characteristic, then clearly these tumours do not belong to that class. They appear as primary growths in the liver with such rarity that observers have been found to question whether it ever occurs, though, as I think, without sufficient grounds. Both Bluck, in *Archiv d. Heilk.*, xvi., 1875, s. 412, and Frerichs, in *Klin. d. Leberkrankheiten*, ii., s. 319 *et seq.*, have recorded undoubted cases. But, as a rule, melano-sarcoma is due to a process of metastasis, the infecting source being, as we all know, in or about the eye or skin; it appears in the liver either as multiple nodes or as an infiltration, or both forms may be combined in varying proportions. Owing to the presence of these nodes the liver is increased both in size and weight, but in spite of this the hepatic tissue between the nodes is often reduced in volume. The peculiar structure of these tumours is due to the fact—as will be noticed presently—that the capillary vessels, as far as their junction with the hepatic veins, are completely filled with black cells, and hence the characteristic whorled appearance of this portion of the vascular apparatus is manifested in black radiate figures of all sizes. In section under the microscope can be distinguishd both stroma and nests or accumulations of cells. The stroma here and there is found to contain liver cells, which are in many cases distorted and stained with pigment. The real nature of these may be at once detected, not only by their peculiar characteristics, but by their direct continuity with the secreting network. In the finer trabeculæ, spindle-shaped or stellate cells are seen, but these have no connexion with the hepatic cells proper. Surrounding the cells will be noticed the capillary membrane; and according to Rindfleisch the cells of this growth originate in these vessels, owing to a proliferation of the endothelium; the nodes are rich in delicate newly formed bloodvessels, which most likely proceed from the hepatic artery; whilst the vessels connected with the portal and hepatic veins are probably destroyed.

In the infiltrated form of melano-sarcoma the liver increases remarkably in size in a very short time, but undergoes no very striking alteration in shape; the external surface is smooth, although flattened protruberances appear where the growth has become dense and compact. On section the organ is seen to have preserved its characteristic acinous structure, but the acini are enlarged, and have a mixed colour composed of the normal hepatic brown and of the white and black of the new growth; the variable quantity of blood in the part also occasions a difference in the colour. Small nodules, more or less circumscribed, are diffused throughout the structure, and in consequence of many of the cells of the growth being free from pigment, or containing but little, a peculiar spotted appearance is presented, very much resembling granite, and hence the familiar name of "granite-like cancer." As regards the histology of infiltrated melano-sarcoma, Schueppel relates a very interesting case in the *Archiv d. Heilk.*, ix., 1868, page 389, in which, at the autopsy of a patient who had suffered from melanotic growth of the choroid, he found both the liver and spleen enormously enlarged from the deposit of infiltrated melano-sarcoma; in the liver the capillaries of the portal system were everywhere crowded with cells of this pigment-growth, being at the same time absolutely devoid of blood; the capillaries were dilated, and the hepatic cells between them compressed and atrophied. In other cases in which the infiltration was very great the hepatic cells had completely disappeared. In this case there can be no doubt the germs of the disease wandered through the portal vessels from the spleen, and also that the infiltration was intra-capillary; it is still a matter of doubt whether in other cases the disease is transmitted through the capillaries of the hepatic artery.

(*c*) *Sarcoma.*—This growth has generally been regarded as carcinomatous, and there is perhaps some excuse for this as it is almost, if not quite, impossible during life to diagnose sarcoma or to distinguish it from true cancer. It is by no means a rare growth, and occurs for the most part metastatically. The nodes are so small in size or exist in such small numbers that they are often quite overlooked until revealed at the autopsy. In other cases these secondary deposits are found in such numbers or attain such a large size that the liver is enormously increased in volume. The growth occurs in one of two forms: either as deposits which appear as rounded elevations on the surface, or as a diffuse infiltration, which is generally the form with medullary lympho-sarcoma. The ordinary characters of hepatic sarcoma vary with the peculiarities of the original growth. Fibro-sarcoma and myo-sarcoma are both firm growths of a whitish tint, which exude on pressure a clear mucous liquid. Osteo-sarcoma is soft and of a medullary character, in contradistinction to the primary growth. Secondary lympho-sarcoma occurs most frequently as a soft medullary growth, rich in cells, and discharging on section a thick creamy juice.

(*d*) The last class of malignant tumours to which I shall briefly direct attention is the *adenomata*. They are very rare growths, but always primary, and occur as multiple tumours varying in size and scattered irregularly throughout the liver, more particularly near the surface. The larger nodes are distinctly encapsulated; the smaller ones, although circumscribed, are in immediate contact with the hepatic substance; they project a little above the surface, are yellow green or reddish in colour, are rather softer and more succulent than the liver substance, and discharge

on pressure a clear serous fluid. As a rule, adenoma of the liver is always a local disease, implicating neither the lymphatic glands nor distant organs. In a case, however, recorded by Professor Greenfield in the 25th volume of the Pathological Transactions, the lungs and mediastinal glands were both affected.

Microscopically adenoma is seen to be constructed on the type of genuine glands, especially of the tubular variety. The tubules of which it consists lie more or less parallel to each other, although in some parts they form a network and are connected with the hepatic ducts; transversely they are seen to possess a marked similarity to the convoluted tubes of the cortex of the kidney; they are lined with epithelium, whilst the lumen is filled with a tough mucoid mass of a yellowish or greenish tint. These tubules are held together by delicate connective tissue, which serves as a support to the delicate network of capillary vessels; the smaller ones, according to Schueppel, getting their blood-supply from the portal vein, whilst Rindfleisch believes it comes from the hepatic artery. The growths are more deeply stained with carmine than the surrounding tissues, and they appear merely to replace the ordinary hepatic cells. The tubuli of which adenoma are composed appear to arise from the rows of hepatic cells, whilst the glandular cells arise from the hepatic cells themselves; they increase in number by a process of division and subdivision, and then arrange themselves in a circular manner round a biliary capillary vessel, thus forming a glandular tubule. These tumours increase in size partly by off-shoots from the original tubules, and partly by the coalescence of nodules which have arisen from the transformation of the trabeculæ of hepatic cells. The nodules generally undergo softening, the cells becoming fatty and the serous capsule producing a certain quantity of pus, so that ultimately an abscess cavity may be produced which is liable to burst into the peritoneum, producing fatal peritonitis.

Cheltenham.

ON A CASE OF EMPYEMA, WITH REMARKS.

BY G. H. DARWIN, M.D., M.R.C.P.

THE teaching of Trousseau has of late years largely modified the treatment of both acute and chronic pleuritis, and has brought a class of severe and dangerous disease, more immediately within the reach of art, to the saving of many lives and the prevention of much and very serious deformity and loss of function. The grave results which follow from the distension of the pleural sac with fluid are not confined to the loss of power of expansion in the compressed lung, but vary in degree and kind with the side affected, being generally more serious in pleuritis of the left side than in that of the right. This of course depends upon the anatomical connexions; the displacement of the heart, which ensues when the left pleura is largely distended, drags upon the large vessels, and induces abnormal conditions in their course and calibre, and this alteration reacts upon the amount and force of the current of blood which passes through the organ, and consequently upon that which passes through the great vessels and the organs they supply. Thus the inferior vena cava has been found, on post-mortem examination, to be bent by the forcing over of the heart to the right side, until it has formed a right angle with its normal course, to the great (and in the case mentioned to the fatal) obstruction of the circulation. Hence arises obstruction to the return of blood from the lower extremities, congestion, stasis, and syncope; or, in other forms, the overtaxed right lung, already doing double duty as vicar for the compressed and useless left, becomes engorged, the pulmonary vessels are blocked, and dyspnœa and suffocation ensue, resulting, unless relieved, in death.

The efforts of nature herself must have early directed the attention of physicians to the question of evacuation, when the contents of the sac were clearly purulent; but for long they were followed with timidity, and not unless there were symptoms of severe dyspnœa, or even impending suffocation, was it considered advisable or necessary to resort to parsecentesis. It was reserved for Trousseau (Clinique de l'Hôtel Dieu, p. 617) to show how the resources of art could come to the assistance of nature even in the acute stage of pleurisy, and by removing the fluid which caused the oppression prevent the most serious consequences of the inflammation, and rescue the patient from impending danger and most serious and lasting deformity. Some of the advocates of this procedure have been led by their enthusiasm to assert that no case of pleuritis with effusion can be cured without this operation (Niemeyer). This is probably much too strong a statement, but it may be at least agreed that whenever the fluid products of an acute pleurisy induce distinct distension of the intercostal spaces, alteration in position of the heart, or any tendency to syncope or dyspnœa, its removal either complete or partial should be at once effected, and more especially if there are symptoms of hectic pointing to the formation of pus. In public or hospital practice this may be done as soon as the symptoms are seen to call for interference, but in private practice it is much more difficult, as the patient and his friends have to be consulted and made aware of the necessity, or at least advisability, of the operation, and they are not always ready to see the signs which indicate the need of such procedure at the time most favourable for it, and usually have a great dread of any opening into the cavity of the chest. Such was the case in regard to the patient whose history I am about to relate, and in consequence the operation was delayed beyond the most favourable period, a delay which led to some of the developments of the case, and most probably prolonged its continuance.

Thomas H——, aged sixteen years, apprentice in a Manchester warehouse, a thin, pale, anæmic-looking lad, 5 ft. 3in. in height, weighing just before the attack 8st. 3lb., was seized, on Feb. 1st, 1882, with shivering of so violent a character that his fellow apprentice laid him upon a table or counter in the warehouse and held him down. He was taken home and put to bed, and his mother administered some simple household remedies for a cold, but finding him no better sent for me early next morning. He was then very feverish, lying on his back, with hot, dry skin, a pulse of 120 in the minute, and the temperature in the axilla 104·8° F. Complained of pain across the chest, but more particularly on the left side; he could breathe with moderate freedom without any perceptible increase of pain, but the respiration was very quick (45 in the minute). On admission I found dulness on percussion over the lower two-thirds of the back of the left lung, and on auscultation loud tubular breathing, with crepitation and bronchophony. The left side did not expand equally with the right; the tongue was coated with thick white fur, and he suffered from a rather severe diarrhœa. The history that I obtained was that three days previously (Jan. 31st) he was running away from a man, when he fell over a large package, and the man following fell over him, falling with his knees on the lad's chest. The man was a stout, heavy fellow, weighing, the lad said, 15 st. On Feb. 4th he expectorated glairy, rusty-coloured sputa; he had a short dry cough, and there was delirium, also sordes on lips, with more dulness on percussion. From this time the case followed the usual course of pleuro-pneumonia, until Feb. 20th, when he was much troubled with dyspnœa; the left side did not move as the right did; there was dulness on percussion almost all over the left side, with absence of vocal resonance and diminution of the respiratory murmur. I proposed to make an exploratory puncture in the chest, but the parents would not sanction this, and five days later he had violent shiverings during the night, with great dyspnœa and rapid breathing. Pulse small, 120 in the minute. The heart was at this time displaced to the right. I again pressed for permission to puncture, but was still refused. The patient was now rapidly getting worse, and I therefore requested Dr. W. H. Barlow to see the case with me. He agreed with my diagnosis, and supported my request; but the friends being yet unwilling it was arranged to see him again in a week. On March 11th Dr. Barlow again saw the case with me. There had been considerable shivering, with night sweats and frequent cough. The cardiac impulse was between the fifth and sixth ribs on the right side. Pulse 115, small and weak. Paracentesis thoracis was performed in the space between the latissimus dorsi and the trapezius, by the lower angle of the scapula, and in the seventh intercostal space; about half a pint of pus was evacuated by the cannula, and then the opening was enlarged and a drainage-tube inserted. I saw him again in the evening, and he said he felt better, but the dyspnœa was very little relieved. The next day there was a very little discharge of pus, so I washed out the tube with a solution of carbolic acid. On the 13th Dr. Barlow saw him again, and made a counter-opening about three

inches more anteriorly in the same interspace. A drainage-tube was passed through from one to the other, and the ends tied together. A considerable quantity of pus escaped, and we hoped it would have been effectual; but on the 15th there was more shivering, and on this date a small fluctuating tumour was seen in the same costal interspace as the openings already made, but about two inches more anteriorly and consequently lower; this was at once opened, and gave exit to about a pint of pus, quite sweet and laudable. A drainage-tube was inserted, and the three openings were all covered with a poultice. From this time a considerable drainage of pus took place, and the heart seemed to have moved more towards the median line, when on March 24th I was sent for in great haste, the message stating he was dying. On arrival at the house I found that he had recovered from the urgent symptoms that had been the cause of the message, and heard that he had been coughing rather heavily, when suddenly he gulped about a teacupful of pus, which almost suffocated him. From this time he improved rapidly, had but little cough, but would now and then get up a mouthful of pus, which, however, gradually became less. The external wound ceased to discharge, and when the drainage-tubes were removed gradually closed. On May 13th he was able to take pretty long walks and was gaining flesh rapidly, while the left side expanded freely and the respiratory murmur was heard in every part. There were still some slight bronchial râles, and he occasionally brought up a little purulent matter, but had not done so for a week or ten days, and was to all intents convalescent. The recovery is now (Sept. 20th) quite complete.

In the consideration of this case, the question that first arises is as to the connexion, if any, between the injury to the chest and the inflammatory symptoms which so speedily followed. Was the sequence a mere coincidence, or was the relation that of cause and effect? The point is one of doubt and difficulty. It is clear that no fracture of any rib was detected, nor are there now any signs that such an injury has ever existed, and yet it is difficult to conceive how, in the absence of such a lesion, inflammation could originate from such an accident. Our knowledge of nervous pathology, however, forbids us to say that such a result is not possible, improbable as it may appear *prima facie*.

It has been shown by Brown-Séquard[1] and others that an irritation to the periphery of a nerve may produce an inflammatory affection of a distinct and distant organism. But would such an injury as that recorded in the above case produce an irritation sufficient for this purpose? In the present state of our knowledge, we must be content to leave the question undecided and merely record the fact.

The progress of the case after the operation of paracentesis thoracis deserves a little notice. Firstly, there was the free gush of pus for a short time; then cessation, to be renewed when the tube was cleared for a very brief period; after this a gradual draining away of healthy pus for some days; then followed the creation of a counter-opening and the insertion of a drainage-tube after the manner of Chassaignac, resulting in the continuous drainage of a small quantity of pus; and finally the spontaneous pointing of the abscess, not at the point which is the usual place of natural selection, in the fifth interspace, but lower down in the seventh. This makes it quite clear that we had to do with a case like those described by Fräntzel, in which "the pleural cavity was subdivided into several sacs by false membranes," and which would probably have needed to be broken down by the introduction of a catheter had not the pus so opportunely found a free vent through the lung.

Professor Morgan of this city[2] has given an account of two cases in which this method was adopted with excellent results, and in the same paper he advocates the treatment of the collapsed lung by the respiration of compressed air. In one of these cases the "tough fibrous ribbons which subdivided" the cavity "into pouches" were perforated by a long trocar and cannula made for the special purpose; in the present case a long bladder trocar was the means used to make the counter-opening. The gush of pus into the bronchi was so sudden and so copious as to endanger life for a few moments from suffocation; it is generally gradual and the openings of communication so minute as to escape detection in post-mortem examinations, so that it was believed by the late Dr. G. H. Barlow that the pus escaped by transudation through the coats of the bronchi without breach of continuity. An interesting point in the case is the fact of the opening into the lung occurring after not only the creation of two artificial openings into the chest wall, but also after a spontaneous pointing (for if the fluctuating tumour had not been lanced, it would speedily have burst, as the wall was already thin and red); and Dr. Wilks has pointed out[3] that the lung gives way more readily than the chest wall. This case resembles one described by Hillier[4] in the fact of the pus making its way into the lung after paracentesis has been performed; but I have not met with any record of such an occurrence after spontaneous opening of the chest wall. Is it not possible that this may have resulted from the actual advance towards recovery, the gradual expansion of the previously compressed lung distending and enlarging what was before but a superficial ulceration of the condensed lung tissue, until it became a gaping wound and allowed a free passage to the pus? The fact that the position of the heart had changed more nearly to the normal before this took place would seem to point to some such explanation of this curious fact. The mode of evacuation through the bronchi has been generally considered to be a favourable mode of termination in these cases, and in the present one no doubt the favourable result is due to this cause, finally, if not altogether. The experience of Dr. Wilks[5] would seem to throw a doubt on this, but here the improvement was marked as soon as the mechanical result of the escape of fluid into the lung had passed. This case shows also how little harm is done by the entrance of air into the pleural sac in cases where the contents are already purulent if free drainage be provided, and the air itself be free from the special septic germs which too often abound in the air of the hospital ward. The pus was perfectly sweet throughout the case, and I do not think that the case could have done better had the Listerian precautions been carried out in all their integrity, a task which is often impracticable in dealing with patients of this class in their own homes and without assistance.

Dr. Fuller, in his work on Diseases of the Chest, has pointed out that it is difficult to believe that air does not enter the pleura even under the most careful precautions during aspiration, for either this must occur or the lung must immediately expand, or, thirdly, the chest walls must fall in, to permit the exit of any effectual quantity of the fluid contents. But we know that even in cases which pursue a favourable course the lung does not at once expand, nor even in children, when the chest walls are most yielding, do they at once collapse. We are therefore driven to a conclusion which is *à priori* probable, that air does enter the pleura by the side of the needle or cannula. The more resilient the chest walls and the compressed lungs the less is the amount of air thus admitted, but it is probable that in all cases it finds entrance in some degree proportionate to the quantity of fluid withdrawn.

There were unmistakable symptoms of pneumonia associated with the pleurisy in the early stages; whether these were coincident, or, if not, which was the prior affection, I am not able to say, further than that there were crepitation and bronchophony when first seen by me, and rusty sputa very shortly after.

It has been well pointed out by Dr. Wilks, in the paper already cited, that whenever local dulness with absence of breath sounds persists after an attack of chest disease, "by whatever name it has been called," a local empyema may be suspected; his words are stronger—"is present"; and that when an acute pneumonia ending in resolution leaves no result behind, it is the pleurisy which accompanied or succeeded the pneumonia that continues to progress, and a local empyema is the result, and this he tells us is "positive knowledge gained by inspection," and certainly this case, so far as it goes, bears out his statement.

Didsbury, Manchester.

[1] "Hardly is there any affection that cannot be considered as having sometimes been produced by a reflex action, the cause of which is an injury, a disease, or at least an irritation of a nerve." (Brown-Sequard on Diseases of Nerves—Holmes' System of Surgery, Vol. 5, 1882.)

[2] THE LANCET, Feb. 26th and March 5th, 1881.

[3] British Medical Journal, June 21st, 1879.

[4] Diseases of Children, p. 56.

[5] Loc. cit.

A NEW Home for Incurables was opened at Mauldeth by the Bishop of Manchester on the 15th inst. Accommodation is provided for 100 patients. The building, which was purchased for £15,000, and to which a wing has been added at a cost of £8000, was originally occupied by the Bishop of Manchester.

BRAIN WEIGHT AND BRAIN POWER.

BY SURGEON-MAJOR J. P. H. BOILEAU, B.A., M.D.,
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ALTHOUGH the connexion between the relative weight of man's brain and his intellectual development is very well known, and several illustrations of this connexion have been published, I feel assured that the following notes of a remarkable case may not only well be added to the list of those already recorded, but that it is desirable that this should be done. It is the case of an officer who died at Netley last year, and I am indebted to a published memoir for some particulars of his life.

A Scotchman by birth and parentage, he received his early education in Edinburgh, and afterwards went to Wimbledon School previous to entering Addiscombe, where his career was exceptionally brilliant. At the final examination there, he scored an unusual total of marks, gained the sword of honour and Pollock medal, and several prizes for specific subjects. On leaving Addiscombe in 1858 he proceeded to India, where he was employed altogether in civil duties. At the time of his death he was superintendent of the telegraph department. With no military distinctions, he was nevertheless one of the foremost men in his corps. Highly gifted intellectually, duty no less than inclination prompted him to cultivate his mind as a preparation for advancement, for he held strongly that no one is fit for highly responsible positions who fails to keep himself as far as possible on a level with current events, and with the thoughts, investigations, and discoveries of the day. His wide reading and tenacious memory made him a man of mark in any society. His opinions were his own, formed independently, expressed if necessary forcibly, and followed always courageously. He was an exceptional man, and his large-hearted and wide-reaching sympathy won him admiration and love among high and low. His remarkable qualities were as conspicuous in his earlier as in his later years. He was a standard of conduct to his schoolfellows, and when at Addiscombe the governor did him the extraordinary honour of making a private report to the board of directors of the East India Company, which was quoted by the chairman on the examination day. The reputation with which he started increased daily, and was sustained to the last. But the strain was too great. Exposure to a pernicious climate—and his physical strength led him to expose himself only too carelessly—for twenty-four years, with but eighteen months' leave, weakened a naturally magnificent constitution, and he was compelled to take furlough. His intellectual vigour, however, was shown nearly to the last, and only a few days before death he expressed his capability of undertaking difficult mental work. But a sudden change set in, and in a few days proved fatal.

During his stay at Netley he suffered from extreme debility, induced probably by intractable diarrhœa. A day or two before death he complained of severe headache, and his axillary temperature rose from 101°–102° to 106° F.

It is very much to be regretted that at the time I was called upon to make the autopsy I was not in possession of the facts narrated, for had I been the examination would have been more complete in many points. The diagnosis of the case was very obscure, but hepatic abscess was suspected, and it was to clear up this point that the examination was made. The severe headache, however, and the rise of temperature pointed to some cerebral or meningeal mischief, and it was thought advisable to find out if such existed. For this purpose the cranium was opened.

Abstract of autopsy (made not only with the full permission of relatives, but, I believe, by request).—Cranial bones very dense; dura mater extremely vascular; brain substance generally firm and normal. On opening the left ventricle pus was observed in the anterior cornu; the origin of this was in the anterior part of the intraventricular portion of the left corpus striatum, which here was quite destroyed and broken down into soft shreds. Before dissection the brain weighed 26,130 grains avoird., or 59·72 ounces. After examination, a portion of it, weighing 22,785 grains, was found to displace eighty-six cubic inches of water; the specific gravity was therefore 1·049. The lungs were perfectly healthy, with the exception of the lower lobe of the right. In this there was a circumscribed abscess cavity measuring in its longest diameter three inches. It communicated with a small abscess in the liver through an opening about the size of a florin in the diaphragm. The heart was quite normal. The lining membrane of the great blood-vessels was deeply blood-stained, that of the aorta being very much roughened in patches by atheromatous degeneration. Jejunum, ileum, and colon normal; no trace of ulceration, but the solitary glands of the latter were large and prominent. The liver presented a uniformly brown colour throughout, and was much softened. In the upper portion of the right lobe there was a small abscess about one inch in diameter, and nearly surrounded by a dense thick fibrous envelope. This abscess communicated with the lung. The spleen was slightly enlarged, weighing 4375 grains. The kidneys appeared to be quite normal; they were enveloped in a large amount of fat.

The chief interest in this case lies in the great weight of the brain, and its high specific gravity, in relation to the highly gifted intellectual power exhibited by the individual during life. As this brain weighed very nearly 60 oz., it exceeds that of all others usually quoted, with the exception only of Cuvier's, which weighed 64½ oz., and that of Dr. Abercrombie, which weighed 63 oz.[1] Sir J. Y. Simpson's brain weighed 54 oz., and that of Agassiz 53·4 oz. It is well known that the average weight of the adult male brain is under 50 oz. The specific gravity of the brain I examined was 1·049, and this is as high as any recorded. From Professor Aitken's work I find that the average specific gravity of the brain is 1·036, and the highest specific gravity of the densest part of a brain ever taken by Professor Aitken, or anyone else I believe, is 1·049.

The weight of the brain in this case was in the first instance taken by the orderly corporal in charge of our microscope room, and recorded by him on the black board in the mortuary. I immediately verified its accuracy by weighing the organ myself, and I also verified the correctness of the weighing machine. The specific gravity was taken very carefully. Surgeon-Major Hogg, Army Medical Department, was present at the time.

The average cranial capacity of the adult male head is, I believe, about 90 cubic inches. Cuvier's is reported to have been about 118. In the case which I now record it must have been about 108.

THE INTRA-VENOUS INJECTION OF FLUID FOR SEVERE HÆMORRHAGE.

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(*Concluded from p. 437.*)

STUDENTS, with smiling faces, are rapidly leaving the theatre of one of our metropolitan hospitals. The most brilliant operator of the day has just performed immediate transfusion with the greatest success. By means of a very beautiful instrument, the most complex and ingenious that modern science has as yet produced, a skilful surgeon has transfused half a pint or perhaps a pint of blood from a healthy individual to a fellow-creature profoundly collapsed from the effects of severe hæmorrhage. Some little difficulty was experienced prior to the operation, as one of the many stopcocks of the transfusion-apparatus was found to work stiffly, but this error was quickly rectified by a mechanic in attendance. Towards the close of the operation the blood-donor, a powerful and heavy young man, swooned. Two porters carried him on a stretcher into an adjoining room, his wounded arm being bandaged up, *secundum artem*, by energetic dressers. Diffusible stimuli were exhibited by the mouth, nostrils, rectum, and skin. The man rallied in due course, being well cared for by a group of students and nurses deputed to look after him. The wound in his arm will probably heal speedily, or a few weeks later he may possibly apply at the out-patient department of the hospital, presenting an ugly-looking pulsatile tumour, associated with a thrill and rasping bruit, connected with the vessels in the

[1] A case is recorded in the Brit. Med. Jour., 20th Oct., 1872, by Dr. Morris, in which a brain examined at University College, London, weighed 67 oz. It was that of a bricklayer who could neither read nor write.

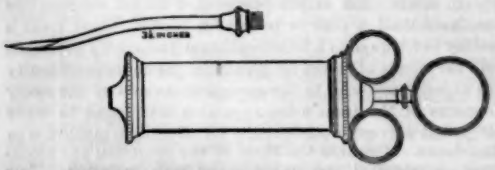
cubital triangle—a most unfortunate accident having clearly happened here, of which a record promptly appears in the columns of THE LANCET.

Time rolls on, and a spectator of the duplex operation, possessed of an instrument such as he had seen employed, finds himself at midnight, in a lone house in the country, face to face with an alarming case of post-partum hæmorrhage. He has adopted the modes of treatment recognised as judicious for the condition before him. He has employed active hæmostatic agents, and finally that potent but highly dangerous styptic, perchloride of iron. His patient is blanched and collapsed to the last degree. Are not her bloodvessels so thoroughly drained of blood that there is not sufficient of that element circulating in the uterine walls to stimulate to *permanent* contraction its muscle fibres? Is not this the very case for transfusion? The accoucheur puts his apparatus in order (he may not have it with him, and be obliged to send home for it) and selects a blood-donor. He has little time or opportunity under the circumstances I have depicted to find an adolescent, healthy beyond a doubt; little time has he to eliminate the existence of syphilis or of other specific communicable diseases by a well-planned examination of the youth, nor to obtain a knowledge of his previous history and mode of life. The operation is commenced; the blood-donor faints; the friends of the patient, the necessarily improvised assistants to the accoucheur, faint also. The operation is abandoned, and it and he who proposed it fall into disrepute. But there may fortunately have been time to summon a skilled assistant. The veins both of blood giver and recipient may have been dexterously opened, and transfusion commenced. Still, accidents may even now happen; a small coagulum may form within the apparatus, or a little air gain access through some contingency to the veins operated on.

The picture is carried far enough. Is the operation of immediate transfusion, as taught and elaborately performed in hospital practice, where there is every means of ensuring success, one of universal application? Is it one that can always be performed when most needed—under urgent circumstances and at a moment's notice, often in the night, at Land's End, John O'Groat's house, or Ratcliffe-highway, and by an unaided operator, with everything against him?

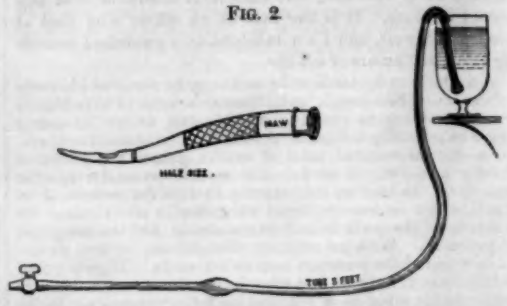
If the practitioner have not at his command, when circumstances indicate its employment, a transfusion-apparatus, what can he do? Imitating Treves, he may file down the bone nozzle of an aural syringe, and through this rude but efficient cannula administer an intra-venous injection.[1] No satisfaction can possibly be greater than, under compulsion, to have operated successfully in such a manner. But would it not be far better were some simple method known, which, being of ready application, and not requiring complex, expensive instruments, difficult to manipulate and otherwise objectionable, might be employed by every medical man in the kingdom with ease, expedition, and safety? This question forced itself upon me very strongly when, in the case I have recorded,[2] I administered, with the three-ounce metal transfusion-syringe of the London Hospital (as represented by Fig. 1), an intra-venous injection, the pro-

FIG. 1.



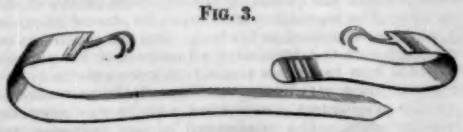
cedure being, in my estimation, fraught with the risk not merely of admitting air whilst detaching the body of the syringe from its nozzle by means of a screw, for the purpose of refilling the instrument, but also with the danger of injuring important structures adjacent to the vein selected for operation (in the case of the median basilic vein, the brachial artery) with the point of the nozzle; for the syringe being many times heavier than the nozzle it was impossible for me to uphold the latter steadily during the proceeding. Fig. 2 illustrates an instrument which, to obviate the objections I have mentioned, has been made for me by Maw and Co., and has been briefly described in my paper of last week. It is essentially a syphon, consisting of five feet of elastic tubing, one extremity terminating in a vulcanite bell-shaped opening guarded by a metallic grating, the other joining a silver stopcock, to which a cannula can be attached. A short distance from this extremity the continuity of the syphon is interrupted by a small glass tube, inserted for purposes of observation; a few inches higher still is an exhausting bulb, by which the air present in the instrument can be expelled prior to use. A semicircular canal of vulcanite protects the rubber tube where it passes over the edge of the vessel containing the solution for injection. The cannula is serpentine in form—following in this respect

FIG. 2.



Treves's pattern,—compressed a little laterally and embossed at the part where it should be grasped by the operator's fingers. It gradually tapers to a blunt extremity, at a distance of half an inch from which is an oval aperture for the transit of the vivifying fluid. This aperture can be closed by the pulp of the index finger whilst the point of the cannula is being inserted into the vein; as the finger is withdrawn the cannula is simultaneously pushed onwards; *the possibility of the entrance of air into the vein*, if this method be adopted with ordinary care, being certainly avoided. The cannula is grooved fifteen-sixteenths of an inch from its point, by which means it can be secured with a ligature and maintained *in situ* when fairly within the vein. Always mindful of the fact

FIG. 3.



that it must become the duty of every surgeon at some time or other to perform transfusion, like tracheotomy, entirely unassisted, or his patient must succumb. Fig. 3 represents an automatic retractor, which, being capable of almost instantaneous application, might often be very serviceable.

In conclusion, I beg leave to acknowledge many valuable suggestions I have received in reference to this syphon from Dr. Palfrey and Mr. Fenton-Jones, and to express the hope that by the substitution of simple for complicated methods of transfusion or intra-venous injection, every instrument devised for its performance being safer and surer in its mode of action than those which have preceded it, the operation will at length be elevated from the dazzling but delusive position it at present occupies to one of true utility to mankind.

[1] THE LANCET, 1877. [2] Ibid., Sept. 16th, 1882, p. 436.

NOTE ON THE OCCURRENCE OF

CHOLERA-LIKE SYMPTOMS IN CASES OF URÆMIA.

BY H. MALLINS, M.B., M.CH.

THE perusal of the notes of a case of malignant cholera in THE LANCET of July 29th brought to the writer's recollection a case met with in India, in which many of the symptoms of cholera were induced by uræmic poisoning. The case was as follows:—

Ram Din, a grass-cutter of No. 2 Battery, Punjab Frontier Force, was admitted into the Battery Hospital, Edwardesabad, on the 20th of August, 1875, at twelve

o'clock noon, in a state of complete unconsciousness, with severe vomiting and purging, the stools being of the rice-water character. It appears that he had been doing his work up till 9 A.M., and it was while cutting grass in the sun that he first fell ill. When seen the following morning (August 21st) his state was as follows:—Features pinched; surface quite cold to the touch. Tongue dry, with slight brown fur. Is now quite sensible, and able to get out of bed. Pulse 118, very weak; respiration 32; temperature 99·2°. Passed a little urine yesterday evening. On passing a catheter the bladder is found to be quite empty. Is still purged, the stools being of the consistence of whey, dirty light brown in colour, free from smell, with floating flocculi. Voice is now fairly strong.—7.30 P.M.: Surface still feels cold. Temperature 99·4°; pulse 120, very feeble. Abdomen tense and tympanitic. No urine in bladder. Has passed three stools since the morning, of thick consistence, faintly yellow colour, and slightly bilious odour.

August 22nd.—Lies in a drowsy state. Pulse 120; respiration 24; temperature 100·1°. Has passed four stools during the night, of distinctly yellow colour. Urine still suppressed. He gradually became comatose, and died at 6 P.M., after a slight convulsive attack.

Autopsy, half an hour after death.—The chief morbid appearances observed were: Firm pleural adhesions on both sides of the thorax; extreme congestion of both lungs; the right ventricle distended with fluid black blood; walls of the left ventricle hypertrophied; well-marked atheroma of aorta. Kidneys weighed 4 oz. and 6 oz. 7 drs. respectively; both were diseased, the surface of each being uneven from the presence of numerous depressions, in the vicinity of which were several small projecting nodules; capsule adherent in places; surface of section pale and bloodless; no distinction between central and cortical portions; the pyramidal portion was for two-thirds of its extent occupied by a deposit of a light yellow colour and firm consistence, occurring in isolated masses of circular shape, and varying in size from that of a millet-seed to that of a pea. With the exception of decided vascularity of the mucous membrane of the large bowel, the intestines were healthy. Bladder firmly contracted and empty.

Remarks.—At the time of the occurrence of this case an outbreak of cholera was not unlikely, as cases had been reported from some stations close by. The sudden occurrence of the symptoms of unconsciousness, coldness of surface, feebleness of voice, vomiting, purging, the stools being of the rice-water character, and finally the suppression of urine, might have justified the diagnosis of malignant cholera, and in the absence of an autopsy the case would most probably have been reported as such. The examination, however, revealed a hopelessly disorganised pair of kidneys, and justified the conclusion that all the symptoms were due to uræmia. It will, therefore, be well to bear in mind the possibility of cholera-like symptoms being due to the diseased kidneys. It may be added that, contrary to expectation, no outbreak of cholera took place at the station where the subject of these notes died.

Watton.

A Mirror
OF
HOSPITAL PRACTICE,
BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI: *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

ST. THOMAS'S HOSPITAL.

TRAUMATIC NEUROMA OF ULNAR NERVE, WITH LOSS OF POWER OF PARTS SUPPLIED.

(Under the care of Mr. SYDNEY JONES.)

E. A——, aged ten, was admitted on March 10th, 1882. Twelve months before she had fallen on to a window, and wounded her left arm above the elbow on the inner side. The wound was sutured, and healed in a month's time, but a tender spot remained in the centre.

On admission she complained of a tender place above the left elbow, and on examination of this there was found to be two inches above and a little posterior to the internal condyle, a scar about an inch and a half in length, running downwards and backwards; posteriorly to this there was another about three-quarters of an inch long. Beneath the principal cicatrix there was a very tender swelling in the course of the ulnar nerve, about the size of a horsebean, and presenting the character of a neuroma. Attached to this and a little below (a quarter of an inch) was a much smaller swelling having the same character. The left forearm was not so well developed as the right, this being most marked in the flexor and the inner sides; there was loss of sensation along the ulnar side of the hand, the whole of the little finger, and ulnar side of ring-finger. The movements of adduction of the hand and apposing of the little finger and thumb were imperfect, and she was unable to adduct or abduct the fingers. The muscles of the inner side of the hand and between the metacarpal bones were much wasted.

On March 18th, the patient being under the influence of ether, Mr. Sydney Jones made an incision about three inches in length over the neuroma and in the course of the ulnar nerve, and another at right angles to this. On dissecting down, the two swellings were found to be connected with the ends of the divided nerve, which were about two inches apart, a small fibrous cord connecting the two. The bulbous enlargements were removed. Both ends were stretched, the upper end to much greater extent and more easily than the lower, and were united together by means of three catgut ligatures. It was difficult to retain them in position on account of the tension. This was avoided by putting the elbow in a straight position. A drainage-tube was placed in the wound, which was closed by catgut sutures, and the limb, placed in a straight position, was encased in an antero-posterior plaster-of-Paris splint. The operation was conducted antiseptically.—19th: In great pain all day; pain described as of a jumping character. Temperature in the morning 104·2°, in the evening 103·2°.—20th: Complaining of pain in the wound. In the morning, pulse 128, temperature 100·6°; evening temperature 99·6°. The wound was dressed; there was found some slight collection of pus between the stitches. Wound looking well; some stitches removed.—21st: A little pain, passing halfway down the forearm on the inner side; can feel in little finger when firmly touched.—24th: Wound re-dressed antiseptically; more pus between edges of wound; the transverse one not healed, and the one at right angles still open where the two join; one or two small sloughs came away; remaining stitches removed, and edges approximated by strapping. No elevation of temperature since the evening of the 20th.—26th: Less discharge; edges closer together; re-dressed under spray.—30th: Wound re-dressed; small slough separating at junction of the two incisions. Can feel when little finger is gently stroked; unable to abduct or adduct fingers.

On April 3rd the wound was re-dressed, and lasted well. On the 6th the antiseptics were left off, and zinc ointment substituted. A week later there was more power in the little finger, and she felt well where before there was either partial or complete loss of sensation.—On the 18th the wound was healed.

On May 5th she left the hospital cured.

On microscopical examination the bulbous enlargements of the nerve proved to be true neuromata, there being little fibrous tissue.

SUSSEX COUNTY HOSPITAL, BRIGHTON.

VESICO-VAGINAL FISTULA; COMPLETE CURE WITHOUT AN OPERATION.

(Under the care of Mr. JOWERS.)

C. P——, aged thirty-nine, was admitted on July 5th, 1882, into Bristol ward. The patient complained of being unable to "hold her water." Ten weeks before admission she was confined. The last confinement was her sixth, and was more difficult than the previous ones. Labour lasted forty-eight hours, and forceps were used. On the ninth day after the operation her urine dribbled away for the first time.

On admission there was a vesico-vaginal fistula at the very top of the anterior wall of the vagina. The opening was ragged, with cicatricial borders, and large enough to admit the tip of a man's forefinger. A female catheter was passed into the bladder, through the fistula into the vagina. The anterior lip of the os uteri appeared to have been destroyed, and the os uteri itself was left somewhat patent.

On July 7th a soft catheter was tied in, and the patient was kept in the prone position.—21st: Owing to obstinate diarrhœa the catheter has been withdrawn.—24th: The catheter has again been tied into the bladder to-day.—28th: The catheter has slipped out during the night. She affirms that much less urine runs away from the vagina, and also that she has passed several ounces voluntarily at one sitting.—31st: Catheter again tied in.

Aug. 4th.—Catheter removed this morning. She says that no urine runs away.—18th: As a small quantity of urine is again escaping the catheter is to be tied in once more.—20th: The patient is menstruating. The catheter has been removed. No urine is escaping.—25th: The patient was instructed never to empty her bladder herself. The urine is drawn off four times in the twenty-four hours. She keeps her bed. The sheets are never wet or stained.

Sept. 1st: She now gets up, and has complete control over the bladder.—6th: The patient was discharged.

Mr. Jowers remarked that he had never met with a similar case. In the text-books there is no such result recorded.

CASE OF CYSTIC BRONCHOCELE CURED BY SETON.

(Under the care of Mr. JOWERS.)

W. B——, aged twelve, was admitted on Oct. 6th, 1881, into the Chichester ward. The patient had a swelling in the neck. He had had this for four years. It was situated in the front of the neck on the left of the median line. It occupied the position of the left lobe of the thyroid gland. It rose and fell during deglutition. It was about the size of an orange, and had the feeling of a cystic body; it was not translucent. The right lobe of the thyroid gland was not enlarged. The swelling did not pulsate; it was neither painful nor tender. Patient's general health was quite good.

On Nov. 10th patient was put under chloroform. A small trocar and cannula were thrust into the tumour; two or three teaspoonfuls of dark coloured fluid ran out. Tincture of iodine and water, half and half, was injected. The trocar was then thrust into another part, and about the same quantity of similar fluid ran out. This cyst was likewise injected.—11th: Patient has had no pain.—14th: The iodine injections have had no apparent effect.

Dec. 1st.—The swelling having regained its former size, the tapping has been repeated and undiluted tincture of iodine injected.—3rd: The iodine has not caused any inflammation.

Jan. 1st.—The injection of iodine has been tried a third time with no apparent effect.

Feb. 1st.—Four pieces of thick silk have been passed through the tumour by means of a post-mortem needle; there was no hæmorrhage.

April 1st.—Since the last note there has been a marked decrease in the size of the swelling. On some days there is nothing to be seen, and then again it will become obvious. Seton continued.

May 12th.—As nothing abnormal has been observed of late, the seton has been removed.

June 21st.—The sinus left by the seton has long healed. The swelling has not returned. Patient discharged.

For the above notes we are indebted to Mr. R. Scott, house-surgeon.

NEWCASTLE INFIRMARY.

EYELASHES IN THE ANTERIOR CHAMBER OF THE EYE, THE RESULT OF A STAB.

(Under the care of Mr. WILLIAMSON.)

PETER MCD——, a schoolboy, eight years old, was admitted on account of a lacerated wound of the foot, caused by the wheel of a coal-truck. His left eye was bandaged when he was admitted, and he explained that a fortnight previously his brother had stabbed him in the eye with a penknife during a quarrel. There was but slight inflammation and very little increase of vascularity in the ciliary region. On the front of the cornea in the area of the pupil there was an irregular cicatrix about the eighth of an inch long, and inside the anterior chamber were what appeared to be six or seven hairs lying vertically. The ends of some of them were engaged in the iris, without seeming to cause any irritation.

Four days after admission the child was chloroformed. Mr. Williamson made an incision at the upper part of the cornea, and excised a piece of the iris. The hairs were then drawn out with a pair of fine forceps; one hair that escaped the forceps was caught by a Tyrrell's hook. All went on well after the operation, and the lad has now good sight with the injured eye.

Under the microscope the hairs were found to taper to a point at one end, and to have a root at the other. They were about the length of the eyelashes. The lid was carefully examined for a gap in the line of lashes, but none was found. Probably the knife was a blunt one, and caught the lashes about the middle, doubling them up and drawing them out by the roots. They would then be carried on the end of the blade into the anterior chamber, remaining there when the knife was withdrawn.

It is remarkable that the hairs caused so little irritation, although some of them actually pierced the iris.

Reviews and Notices of Books.

On the Climate and Fevers of India. The Croonian Lectures for 1882. By Sir JOSEPH FAYRER, K.C.S.I., F.R.S. London: J. and A. Churchill.

IN the present volume Sir Joseph Fayrer has supplied the deficiency we regretted in his work on "Chronic Dysentery and Tropical Disease," a deficiency which in our opinion detracted considerably from its value as a complete treatise on the subject which it discussed. We are the more interested in this matter since year by year the study of tropical disease becomes a greater necessity for every practitioner in this country as the means of intercommunication between the various regions of our vast empire become more extended and more rapid. Sir Joseph Fayrer is therefore assured of an intelligent and interested audience to listen to whatever he has to tell them of diseases that are coming more and more under observation in this country. The work opens with some valuable statistical details, chiefly relating to the distribution of fever in different parts of India, in connexion with the physical geography of the various districts, climate, rainfall, irrigation, habits, food, &c., and then passes to a consideration of the etiology of tropical fevers generally. The origin and nature of malaria are discussed at length. This subtle foe, as far as England is concerned, has long since, like scurvy, been banished to a pathological limbo, and not without reason, since in an open form it may be said almost to have ceased to exist, except in a few—and it appears these are becoming less and less year by year—ill-drained and poorly-cultivated districts. Dr. Stephen Mackenzie's statistics on this point, quoted by Sir Joseph Fayrer, are extremely interesting. From these it appears that in the London Hospital, which from its size and position is well qualified to afford information, in the year 1770, of 1483 in-patients there were 21 cases of intermittent, with 1 death; in 1780, apparently an unhealthy year, there were among 1617 in-patients 59 cases of intermittent, but only 1 death; whilst in 1870, with 5218 in-patients, there were only 2 cases; and in 1880, with 6312 patients, there were 14 cases, but no deaths. The question of malarial poisoning, however, has been revived of late, since many eminent authorities believe that, "though scotched, it is not killed," and that the disease still frequently manifests itself, though in an insidious and incompletely developed form. The chief interest, however, connected with the subject of malaria relates to the probability of its having been caused by organisms. The subject has been investigated by Klebs, Tommasi Crudelli, and others, who have all demonstrated the presence of organisms in the blood of ague patients and the soil of malarious districts. Dr. L. Aitken, of Rome, has in this country shown what he regarded as specimens of bacillus malaria, and Dr. MacMunn, of Wolverhampton, discovered a bacillus in the blood of a young African traveller during the cold stage

of an intermittent fever. Further observations are required, however, before the hypotheses advanced can be finally accepted. Sir Joseph Fayrer states the case as it at present stands clearly and impartially. The modes of action of malaria are next discussed, and much valuable information added to our store of knowledge. In speaking of the respective action of air and water in distributing the poison, he makes no mention of the interesting fact to which the late Professor of Military Hygiene at Netley first drew attention—viz., that the troops quartered at Tilbury Fort have generally suffered more or less from ague, whilst the men at the railway station, the coastguard, and their families, just outside the fort, never suffer from malarial poisoning. The soldiers drink rain-water stored in tanks, the others water from a spring.

The second lecture is chiefly devoted to a clinical description of paroxysmal fevers of malarial origin, and is an admirable summary of the chief features of the disease in its various manifestations. The temperature-charts of the different types will be found especially useful by practitioners in this country for purposes of reference and comparison. The author, however, hardly touches the subject of the sequelæ of the disease, and we regret that he has not done so, as it would have greatly added to the value of the work for English readers. At present the best summary we have is the interesting clinical lecture delivered by Dr. Murchison shortly before his death, and which appeared in our columns on May 2nd, 1879. Sir Joseph Fayrer quotes Verneuil as showing the occasional occurrence of glycosuria with or after malarial fever. This, however, is no new fact, since Prout made a similar observation forty years ago.

The third and last lecture deals with the continued fevers of India, and its chief interest consists in the discussion of the question of the etiology of enteric fever in that country—whether the disease which in temperate climates is universally acknowledged to have one specific origin, may not in the tropics be derived from others. As Brigade-Surgeon Marston has well put it, there apparently exists two forms of enteric fever in India, which cannot however be clinically or pathologically differentiated: one not depending on any specific poison generated in the intestines of one person and conveyed to another through some vehicle; the other where the cases can be traced to such cause through fouled air, water, &c. The subject still awaits solution, and it is a question whether a more searching investigation may not prove that the two forms, apparently so alike clinically, may not take a pathological departure in the character of the intestinal lesion. Thus Dr. Wall, of Calcutta, has described an ulceration, by no means selecting the site of Peyer's patches, which occurred in cases of "remittent;" whilst in the post-mortem appearances recorded by Röderer and Wagler in cases of so-called "typho-malarial" fever, the bulky tumefaction, ulceration, and sloughing of Peyer's glands are not recorded as having been present. Nor is the evidence brought forward to show the impossibility of infection from specific causes perfectly convincing. It is difficult, for example, to understand why the fact that cases of enteric fever occur in Europeans speedily after arrival in India, often in districts previously only occupied by natives and where there is absolutely no evidence of any previously existing filth contamination, should be considered as conclusive against the possibility of disease arising from specifically infected excreta, since the seeds of the malady might easily have been brought by the new comers from their last station.

It now remains, in bringing this notice to a conclusion, to thank Sir Joseph Fayrer for the lucid and graphic manner in which he has brought the subject of these lectures under our notice. He has produced a work which will long be consulted as a standard authority on the subject on which it treats, and it will eventually take its place among the medical classics.

Spon's Encyclopædia of the Industrial Arts, Manufactures, and Raw Commercial Products. Edited by CHARLES G. WARNFORD LOCK, F.L.S. Two vols. pp. 2142. London: E. and F. N. Spon. 1882.

THIS splendid work forms a fitting companion to the Dictionary of Engineering published by the same firm. The editor must be congratulated on the help he has received from a large staff of contributors well known in the scientific world, and on the great judgment and skill he has displayed in a task of no ordinary magnitude.

The plan of the work is explained very clearly in the preface, from which we should quote largely if space permitted. "The most notable and important feature is undoubtedly represented by the Raw Commercial Products." These are arranged "in groups according to their similarity of origin, character, and application." Thus we find as separate headings, drugs, dye-stuffs, fibrous substances, narcotics, oils and fatty substances, resinous and gummy substances, spices, starches, sugar, tannin, and timber, with many others. This arrangement presents many advantages, and is on the whole the best, although it is attended with occasional difficulty. Tea, coffee, and india-rubber, for instance, occur under two different headings, and were it not for a tolerably copious index it would in some cases be rather difficult to find the information sought for.

Manufactures and industries form another important portion of the book. We may mention as first-rate articles those headed "Bleaching," "Coal-gas"—evidently by Mr. Greville of the Commercial Gas Company,—"Manures," with elaborate details in regard to the modern artificial fertilizers, "Soap," and "Glycerine,"—which are merely examples drawn from a long list. The articles on textile industries are also very good.

The subject of adulteration is somewhat imperfectly dealt with. The deficiency is not of great importance, as many good text-books are available; but we think it would have been better to have included more of the methods of analysis which have come into use since the passing of the Food and Drugs Acts. The adulterants most frequently used are, in general, sufficiently described.

Among the articles which will be most valuable to our readers we will select a few of the most important, as they serve as fair illustrations of the general character of the work. "Alcohol" is one of the first. It contains an account of the mode of preparation and peculiarities, not only of the common but also of many of the less common spirits in use, such as absinthe, arrack, and kirschwasser. The Russian liqueur, kümel, is, however, omitted. "Beverages" include aerated waters, tea, coffee, cocoa, beer, cider, wine, and water. There is much useful information in regard to the deterioration of wine. "Drugs" is an excellent article. It occupies nearly thirty large and closely printed pages, and gives information about many drugs but little known in this country, such as Ajowan, bael, and the Bolivian coto. The account of the cinchonæ is very full and interesting. "Oils and Fats," divided into animal, fixed, vegetable, and volatile, is also a very useful article, as is that headed "Resinous Substances," under which india-rubber, tar, and turpentine are included.

If we add that much attention has been paid to the nuisances arising from chemical manufactures and the means of remedying them, and that waste products are in general well described, our readers will see that the new "Encyclopædia" is one without which, to use the time-honoured phrase, "no gentleman's library, certainly no medical library, is complete." The book is fully and

admirably illustrated, and is printed well and on good paper So valuable a work will be sure to reach a second edition before long; and we venture to suggest to the editor that it might easily be improved by the insertion of a greater number of well verified analyses of raw, waste, and manufactured products.

Notes on Surgical Treatment and Minor Operations. Specially designed for House-Surgeons and Students. By THOMAS F. HOPGOOD, L.R.C.P., M.R.C.S., Surgeon to the Sunderland Infirmary, &c. London: Baillière, Tindall, and Cox. 1882.

WE are informed in the preface that this work is intended "as a guide to every-day work of house-surgeons and students." A few quotations will show that the above description of the book is not warranted by the character of its contents. The grammatical construction is often peculiar. Thus on the first page we read: "..... dislocations, which can be replaced easily, should be effected at once." A fluid recommended for injection into the sac of an hydrocele is one composed of "equal parts of iodine and water." On page 24 "house-surgeons and students" find themselves addressed in these words: "If you have stricture it may either come under the surgeon's or house-surgeon's care." To pass a French catheter "all you have to do is to catch hold of the penis with the left hand, and drag it well forwards, and pass the instrument by thrusts, at the same time giving it a rotatory motion." On page 16 hot fomentations are stated to prevent suppuration, but hot linseed-meal poultices to hasten it. Again, on page 13, we read that after a large abscess has been opened "in most cases stimulants are necessary." "As a rule, stimulants do good when the pulse grows less frequent, the tongue cleaner, and the temperature lower." We learn also that the stomach-pump "may be used in stricture of the œsophagus, or in mania." In taking a skin graft "a small piece of skin is caught hold of with the artery forceps, and then divided, taking care to remove no fat with it." We will complete these quotations by an extract which is Mr. Hopgood's advice to "house-surgeons and students" when asked to give a prognosis in a case of burn. "If the burn be at all severe it is best to give a guarded opinion, by saying the probability is they will either live or die; but the possibility is that they may recover or not, according to the circumstances of the case—namely, if the chest is burnt the prognosis is not so favourable as if the legs; then, again, the age, constitution, and severity must be taken into account."

The absence of any kind of index, and of any alphabetical or other simple arrangement of the matter of this "guide," is one of the striking features of the book.

A Price List of Surgical Instruments, Apparatus, Appliances, &c. Manufactured and sold by JOHN WEISS and SON. London: M. S. Rickerly. 1882.

Catalogue of Surgical, Physical, and Physiological Instruments, Microscopes, Medical Appliances, and Sundries. By BRADY and MARTIN. Newcastle-upon-Tyne. 1882.

IN revising their catalogue of instruments, Messrs. Weiss and Son have added to it the price of every article, which will be a great convenience to their customers. Unlike many similar catalogues, it contains no illustrations; but this want is to be supplied by a separate book of illustrations, which will shortly be issued, and make the catalogue complete.

Messrs. Brady and Martin supply a priced and illustrated catalogue not only of surgical instruments and appliances, but also of microscopes and all requisites for modern histological work, even down to the various staining reagents and mounting media. Physiological instruments, such as the kymograph, tenometer, and onkometer, are also to be found, along with museum jars and various other appliances used by medical men in their various pursuits. These additions have materially increased the value of this catalogue.

CUTANEOUS INJECTION.

To the Editor of THE LANCET.

SIR,—We are constantly reading of experiments on animals, showing how death is produced by the injection under the skin of fluid containing different kinds of micro-organisms, but might not the gentlemen conducting these valuable experiments greatly enhance their value by trying to discover an antidote to these poisons? If they could only be induced to inject into the veins of the animal about to have the poisonous fluid introduced some of the numerous antiseptics or germicides, they might possibly make the discovery that one of them possessed the remarkable and useful property of converting the blood into a fluid in which the development of the poison could not proceed, and the animal would not die. We have all heard that the injection of a solution of permanganate of potash into a vein immediately after the introduction into the system of the rapidly fatal cobra poison prevents that poison from having its usual fatal consequences, and doubtless it would have the same result if injected immediately before the bite of the cobra. Again, Dr. Fontaine, Bar-sur-Seine, has had the most remarkable success in his treatment of diphtheria by giving his patients sulphide of calcium until the breath and skin exhale the odour of sulphuretted hydrogen. And even if the experiments on animals, such as I suggest, should fail to discover an antidote or germicide powerful enough to counteract the poisonous effects of the micro-organisms, which in a concentrated form are injected under an animal's skin, it might still be possible for those of our surgeons who have a large and sad experience of blood-poisoning, or for those practitioners who have numerous cases of zymotic diseases constantly under their charge, to move in the track of those gentlemen who have been successful in combating the deadly cobra poison and the too often fatal diphtheria.

There are several antiseptics besides permanganate of potash with which the blood might be saturated, either by injection into a vein or by small and frequently repeated doses—for example, eucalyptus, sanitas, the sulphides, the carbolates, the salicylates, &c., and I trust I am not too sanguine in believing it quite possible that carefully conducted experiments might discover in some of these a means of destroying or rendering harmless those other zymotic poisons that play such terrible havoc with human life.

I remain, Sir, yours truly,

Sharesbrook, Sept. 13th, 1882. WALTER SCOTT, M.B.

IRIDECTOMY KNIFE.

To the Editor of THE LANCET.

SIR,—I wish to call the attention of ophthalmic surgeons to a new-shaped iridectomy knife which I have devised. It is easily made out of the old-fashioned knife by having the point ground down, and the cutting edge made semicircular like a cheese-cutter. It is used by a sideways motion until the sclerotic is cut through, and not by transfixion; and the advantages I claim are the absolute immunity from danger of wounding the capsule, and also that the wound, being almost at right angles to the sclerotic, allows of the iris escaping at once. Messrs. Weiss have the pattern, and have made me several. It can also be used for linear extraction, for which I first had it made, and it succeeds very well; but in this country, where there is a difficulty about sharpening knives, it does not last so long as a straight knife.

I am, Sir, yours truly,

GEO. HY. C. HALL, Surgeon, I.M.D.

Eye Hospital, Allahabad, India, Aug. 30th, 1882.

ROTUNDO LYING-IN HOSPITAL. — During the year ending April 1st last, 1319 patients were admitted to the labour wards, which with 29 previously in the hospital made a total of 1348 under treatment. Of these 12 died, and the mortality, deducting 218 admitted to the lying-in department, but discharged, not being then in labour, was 1·08 per cent.

THE LANCET.

LONDON: SATURDAY, SEPTEMBER 23, 1882.

NEARLY twenty years ago, Dr. BRISTOWE and Mr. HOLMES, in a Report to the Privy Council on Hospitals, discussed many of the conditions required for the hospital treatment of infectious diseases. But since that time the principle has been largely accepted that infectious persons should be treated in hospitals altogether separate from those devoted to non-infectious cases, and legal powers have been given to, and utilised by, many sanitary authorities for the erection and maintenance of a number of institutions for the isolation and treatment of infectious persons, and for the prevention and limitation of this class of disease among communities. Knowledge and experience of such hospitals have therefore considerably increased, but the lessons taught by the success of some institutions and the failure of others could only be fully learnt by a comprehensive inquiry into the history of all.

The intention of the Local Government Board to collate the experiences of sanitary authorities who had provided their districts with hospitals has now led to the issue of a volume which will be welcomed not only by sanitary authorities, but by all health officers and architects interested in or concerned with the making of hospital provision for infectious diseases. That the work was entrusted to Dr. THORNE THORNE is good evidence of the importance attached to it by the Local Government Board, and is a guarantee of the thoroughness and trustworthiness with which it has been carried out.

In the first instance a circular letter was addressed to the various authorities, inquiring as to the nature and amount of the hospital provision which had been made by them, with the result of showing that 296 out of 1593 sanitary authorities in England and Wales had made some sort of provision. This inquiry was useful as indicating the districts which were best worth visiting, and these were selected as representing certain classes in which there had been either failure to secure isolation, or in which a temporary or permanent hospital had been provided by a single authority or by combination with other authorities, or where arrangements had been made for the admission of infectious persons into an existing infirmary. Altogether sixty-seven hospitals were visited, and these, varying very greatly, have afforded Dr. THORNE an ample opportunity for considering all details of hospital construction, as well as the requirements of different districts.

Dr. THORNE gives an interesting account of the manner in which many of the hospitals came into existence, and how they are often dependent upon some previous outbreak of typhus or cholera for which provision had to be made; and he states very clearly that if a hospital is hurriedly built under the influence of panic, it is often not ready for occupation until the immediate cause of its erection has passed by; it provides accommodation of a very indifferent sort, and it fails, almost without exception, to meet the permanent requirements of the district. It is obvious that when a hospital is wanted for one outbreak of disease it will in all probability be required for others, and the proper course for a sanitary authority to follow is always to have ready for immediate use the accommodation that will be needed.

Dr. THORNE'S conclusions with regard to the site of infectious hospitals are well worth the consideration of all authorities who may in the future have to provide for their districts. He found that distance from the patient's home alone was not so much an obstacle to the use of a hospital when the sick person's welfare alone was concerned, but that when this interfered with the visits of friends it often led to the sick remaining in their own homes. Again, the removal from one district into another sometimes proved a difficulty, especially when the patient and his friends were not familiar with the region in which the hospital is situated. Indeed, the whole Report bears evidence of the extent to which sentiment influences the amount of use to which a hospital is put, and this is no matter for surprise when it is recollected that families are asked to entrust to strangers the care of some member who at the time is absolutely dependent upon those about him. This is a point which appears in several parts of the Report, and is one which should be carefully borne in mind in all matters relating to the construction and management of such institutions. For this and other reasons Dr. THORNE recommends that the hospital should be situate in the district for the use of which it is intended. If for a town, it should, under ordinary circumstances, not be more than two miles away, and if for a rural district not more than four or five miles from the more populous portions. In choosing the site, regard is of course to be had to the necessity which might in the future arise for the further extension of the building; while the situation of the hospital on the site should, if possible, be such as to admit of the opposite windows of the ward pavilion facing somewhat to the south of east and to the north of west. The whole is to be enclosed by a substantial wall, to prevent any improper communication between the inmates of the hospital and the outside public.

The more efficient hospitals have made provision for two diseases and for two sexes suffering from each; they have therefore consisted of a central administrative block, four pavilions, and out-buildings containing laundry, mortuary, &c. The administrative buildings have always been somewhat in excess of the requirements of the permanent buildings, so as to enable the hospital to bear, without inconvenience, the erection of temporary wards when any special occasion arises. They are separated from the ward pavilions, with which they sometimes communicate by means of a passage well ventilated, by being altogether open or with cross windows. The use of iron and wood for the erection of pavilions has not proved satisfactory. Wards thus constructed have been found too hot in summer and too cold in winter; while, so far as economy is concerned, Dr. THORNE is of opinion that if they were properly constructed to overcome this objection their original cost would either equal or exceed that which would be incurred by the erection of ordinary brick buildings.

The best hospitals are all arranged on the pavilion principle, this plan offering far better opportunities for classification of diseases and ventilation of wards than any other,

and the arrangement of the buildings in the most efficient hospitals was not found to accommodate more than twenty patients on an acre. Where accommodation has also to be provided for small-pox, Dr. THORNE recommends that the pavilion for this disease should be more separated from the rest of the hospital than is necessary for the other fevers, and that it should contain sleeping accommodation for nurses.

The construction of ward pavilions is fully dealt with, the amount of floor, wall, and window space for each bed discussed, and the best methods of ventilating and warming indicated. Much difficulty has been found in comparing the cost of different methods of construction, but a very instructive table accompanies the Report, and shows the cost per bed of some of the best permanent hospitals.

Dr. THORNE goes carefully into the question of the advisability of general hospitals receiving cases of infectious diseases at the cost of the sanitary authorities, and expresses a strong opinion against this plan. He quotes the Pendlebury Hospital for Sick Children as the one best arranged for separating infectious from non-infectious patients, and points out that even in this institution extension of disease among the latter has from time to time occurred, and that where small-pox is concerned nothing but a complete severance of the two parts of the institution, both as regards wards and administration, gives security against such accidents.

An important lesson is taught by the failure of some sanitary authorities to secure the isolation of infectious cases. The failure, as a rule, depended upon the erection of the hospital at a period when it was too late to answer the purpose of isolating the first cases of an outbreak, or when for some reason or other it was not well adapted to the needs of the district. But with one single exception, "no hospital adapted to and kept in readiness for the reception of the sick was found which had not done some good in staying the spread of infection

With regard to the different infectious diseases, Dr. THORNE found the greatest efforts had been made by sanitary authorities to isolate small-pox, while scarlet fever did not appear to be regarded as deserving so much care; but, as he points out, scarlet fever is the disease for which isolation is most constantly and most urgently needed. Dr. THORNE places small-pox next in the order of those diseases which need isolation, but admits that typhus has in some towns prior claims to small-pox in this respect. Dr. THORNE does not enter into the question of how far it is fair to tax for the benefit of the unvaccinated the ratepayer who chooses to protect himself against small-pox by resorting to vaccination; but there is no doubt that the cost of providing for the isolation of small-pox, a cost which is already large, and likely to be much increased if the teaching of Mr. POWER'S report on the Fulham Hospital is to be acted on, will soon make the hospital provision for this disease a very serious undertaking. Diphtheria and measles have been occasionally isolated, but there are good reasons why sanitary authorities should find it difficult to undertake such duties with regard to the latter disease.

Dr. THORNE'S inquiry into the results of compulsory notification of infectious diseases was conducted at a period too early for any large amount of evidence to be forthcoming, but he expresses the opinion that "where a suitable hospital exists, such notification, if general, cannot fail greatly to favour the object in view." In several districts he found that a notification of infectious diseases occurring amongst children attending elementary schools has proved useful in facilitating the isolation of such cases. A point particularly worthy of notice at a time when the arrangements for the isolation of infectious cases in the metropolis are under consideration is the necessity which was everywhere found for the separation of hospital provision for infectious diseases from all association with the relief of paupers. Hospitals for sanitary purposes must be altogether under the control of sanitary authorities, and although under certain conditions the admission of paupers into these institutions does not appear to interfere with their usefulness in other respects, the greatest care is needed to prevent the pauper, while in the hospital, bearing evidences of his social condition.

Many other points are considered which must be left for further notice, particularly the evidence as regards the influence of these institutions on the neighbourhood surrounding them. The Report is undoubtedly the best work on hospitals for infectious diseases which we possess; it contains an excellent account of the different institutions which Dr. THORNE visited, and is very fully illustrated with a number of plans showing their construction and arrangement.

THERAPEUTISTS have paid little attention to the changes which drugs, administered by the mouth, undergo in the digestive organs before they are absorbed, except in the case of those inorganic substances which are given for their direct effect on the gastric mucous membrane. The practitioner gives other drugs, for the most part, without considering how far they may be altered before they leave the alimentary canal. He is guided by what is known of their subsequent action on the system and of their effect in disease, and he is no doubt thus guided, in the main, correctly. Nevertheless the subject is not an unimportant one, since the influence of the digestive ferments on drugs must, or rather should, determine the time of their administration in relation to the process of digestion. At present careful attention is paid to this point in choosing the time at which to administer those therapeutic agents which are designed to have a direct action on the stomach, but, as regards others, it is not considered except in so far as it influences the rapidity of their absorption. No facts, indeed, have hitherto been available for the guidance of the practitioner on this important subject. It is only since the processes for artificial digestion have been perfected that it has become possible to ascertain such facts, and the subject is certainly worthy of the attention of the pharmacological experimentalist.

These remarks are suggested by a series of experiments of this nature, although with a different object, which were described at the recent meeting of the Pharmaceutical Conference by Mr. GEORGE BROWNEN. This gentleman has endeavoured to ascertain to what extent the digestive ferments may be made available for the production of preparations of various drugs. The question necessarily involved that of the extent to which their active principles suffered in the process. The constituents of rhubarb were found to be extracted, with remarkable completeness, by treating an infusion first with an acid preparation of pepsin,

and then, after neutralisation, with an alkaline solution of pancreatin. The former extracted 47 per cent. of the rhubarb, and the latter 13 per cent. more, leaving only a residue of cellulose and earthy salts. Infusion of calumba, prepared with boiling water, and passed through a similar process of digestion, gave somewhat similar results; only spongy cellulose, associated with a trace of berberia, was left. Cinchona and opium, on the other hand, behaved differently; the gummy and extractive matters were dissolved and retained in solution, but a considerable quantity of the alkaloids was left behind. About half the cinchona and two-thirds of the opium were dissolved. The cinchona tannin was destroyed in the process of digestion, and failed to precipitate gelatine. The arabin of gum acacia remained apparently unaffected by the process, but a peptonising change was wrought upon some other constituent of gum, possibly a nitrogenous impurity. The mucilages obtained from Irish and Iceland moss were also tested, since they hold an intermediate position between foods and medicines. The alkaline extract of the pancreas seemed to exert very little action on Irish moss, although the proteolytic ferment of the pancreas, extracted with acids, soon destroyed the viscidity of the mucilage, and divided the jelly into soluble and insoluble portions. Iceland moss behaved somewhat differently. A jelly of it became flocculent when acted on by the gastric ferment, and under the influence of pancreatic extract deposited yellowish white flakes, consisting of non-crystalline masses, possibly peptic acid.

Of more direct interest, however, is the action of the digestive ferments upon definite organic compounds. The acidulated extract of the gastric juice decomposed a watery solution of salicin very slowly and imperfectly, but the pancreatic ferment split up the salicin into saligenin and glucose. Jalapin remained intact after digestion with the pepsin solution, but pancreatic digestion withdrew from it a copper-reducing substance. Neither process had any influence upon santonin. A solution of tannin, treated with the acid pepsin solution, became turbid, but the turbidity disappeared after the addition of a little more hydrochloric acid, and prolonged digestion seemed to have no further influence. The pancreatic extract, however, quickly rendered tannic acid incapable of precipitating gelatine, as it had been found to do in the experiments with cinchona bark, apparently by converting it into gallic acid. The experiments of Mr. BROWNEN go no farther, but he has evidently opened a field of considerable importance, in which other observations will probably yield results of considerable practical value to physicians as well as to pharmacists.

IN our Local Government Department we give an abstract of three reports on Diphtheria which have been presented to the Local Government Board, and which exemplify in a striking manner the difficulties which are connected with investigations as to the etiology of this disease. The outbreaks occurred at King's Lynn, Sale, and Sutton-in-Ashfield. In two instances the disease appeared in low-lying localities; in the third on a plateau at an elevation of 500 ft. above the sea. The soil on which the affected places stood differed as widely as possible—in one instance consisting of the alluvial deposit of the river Ouse, in another of the magnesian limestone and the new red sandstone. The method of infection, though at times due to personal communication, was certainly not so in all cases, and even the fact of school assemblage, so commonly believed to be a principal factor in the incidence of the disease upon young children, entirely failed in one marked instance to account for that special incidence. Various faulty sanitary conditions affecting the housing and other surroundings of the patients were discovered, and they are discussed in detail. They related to pollution of water, exposure to contaminated air from drains and privies, and at times to conditions of filth in-doors; but no one of these conditions could be regarded as common to the majority of the dwellings attacked, nor even to those where the initial cases occurred; indeed, in one town it was evident that the poorest and the least cleanly parts of the district were certainly not more affected than the more healthy localities inhabited by the well-to-do and the affluent. The three outbreaks either commenced or reached their maximum of intensity in the latter part of 1881, and if any common meteorological condition could be regarded as having brought them about, it might have been expected that they would have borne some resemblance to each other in their essential characteristics. But this was by no means the case. In one instance at least, the early attacks were apparently of so trivial and uninfectious a character as all but to escape notice, and the more severe attacks which followed did so with increasing severity, giving some support to the view enunciated by Dr. THORNE THORNE before the Epidemiological Society as to the "progressive development of the property of infectiveness" in this disease. In other instances, however, each group of attacks commenced with genuine diphtheria marked by all its characteristic signs, and followed by the typical paralytic and other lesions. The outbreak at Sutton-in-Ashfield is further interesting by the fact that it seems to have been inextricably mixed up with scarlet fever. These two diseases certainly appeared side by side, deaths occurring almost simultaneously in the same house from both diseases, and, as far as Dr. PARSONS could learn, there appeared to have been so little chance of faulty diagnosis that he himself speaks of the one disease as apparently contracted from the other. Whether these two diseases can possibly have some mutual or common causation is certainly as yet undetermined, but there is something so indefinite about diphtheria as to make it quite possible that the poison to which it is due has not yet acquired the stability possessed by the special infection of some of the other specific fevers, and that it hence at times acquires characteristics resembling other allied diseases, whereas on other occasions these do not manifest themselves.

The etiology of diphtheria is as yet involved in so much obscurity that the record of any painstaking investigation into the subject is of considerable interest, and no piece of work which has been carried out by Dr. AIRY in his numerous researches as to this disease is more typical of the sort of inquiry which is needed than that relating to the epidemic at King's Lynn. Indeed, intending investigators of the subject would do well to study this report, and so to make themselves acquainted with the special and detailed character which their labours must assume if any trustworthy conclusions are to be drawn from them. This will

be the more necessary because it so often happens that bare statements recording, for example, the healthiness or unhealthiness of a locality or of a house affected are entered up in reports as to diphtheria, whereas the views of one investigator as to what constitutes healthiness or the reverse differ entirely from those of a co-worker in the same inquiry, and at times no indication whatever is given as to the nature of the alleged unhealthy circumstances, whereas these may vary as widely as do the different conditions of filthiness about houses which are associated with prevalence of enteric fever on the one hand and of typhus on the other.

From Dr. AIRY'S report on the diphtheria prevalence in King's Lynn, it is evident that every separate circumstance which could have led to the disease received the minutest inquiry, and one by one the conditions of water-supply, excrement-disposal, sewerage and drainage, food-supply, and other matters, are considered and set aside as not sufficing in themselves to explain the problem under investigation. Some of these conditions doubtless favoured the spread of the infection, but it is important to distinguish between the cause of initial attacks and circumstances favouring the subsequent propagation of the disease. This point being held in view, the influence of epizootic disease, of rainfall and damp, and of other circumstances, are also investigated, the question as to the cryptogamic origin of the disease being discussed in connexion with the mould of some fungic mycelium found in several of the infected houses. Failing, however, any satisfactory explanation of the question as the result of this line of inquiry, Dr. AIRY records a fact well worthy of note in connexion with the view often held, and also to some extent supported by himself, to the effect that diphtheria is in some obscure way favoured by dampness, especially in marshy districts. At King's Lynn considerable excavations had been in progress, both in the old river bed and in certain foul deposits along minor streams, just before the onset of the disease, and the direction of the wind was such as to carry into the town any emanations arising from this source. Long-buried germs of some indigenous diphtheria-causing microzymes may, he surmises, have been carried in this way amongst the population affected, the process being aided by conditions of season and of atmosphere favourable to the maintenance of their vitality and to their distribution. Further research can alone determine the value of this fresh hypothesis, but it is at least interesting to note in connexion with it that Dr. PARSONS, as the result of his inquiry at Sale, having eliminated all the more generally recognised causes of infectious disease, deems it conceivable that in the vicinity of the Mersey marshes diphtheria may perhaps be brought about by some living micro-organism, the development of which is nurtured in a moist and porous subsoil contaminated with decaying sewage and other matter. Certain it is that the field of research as regards the etiology of diphtheria is still open, and that no subject ever stood in greater need of being investigated in its minutest details, and with strictly scientific accuracy.

THERE are domestic troubles at the Macclesfield Infirmary, and an appeal has been made to the public through the local lay papers. We are not sure that this was the most prudent or dignified mode of procedure with a view to secure the redress of such wrongs and grievances as those set forth by the resident medical officer. However, let that pass. It is not for us to comment, or to form a judgment, upon matters and questions which have not been submitted to the censorship of the professional press. Without noticing the personal issues raised, there is abundant evidence to show that the domestic discipline of the infirmary at Macclesfield is in a most unsatisfactory state. Past and present resident officers of that institution seem to be agreed that the matron is the ruling authority of the establishment. If this be the fact there is not a word to be said in defence of the organisation. A woman at the head of a medical institution renders it an anomaly; and members of the profession who desire to preserve their self-respect should retire from an establishment thus constituted. It is, as we have repeatedly and strongly insisted, essential to the welfare of a medical institution that it should be under the control of the medical men attached to it. The only legitimate position of a matron in such an establishment is that of a housekeeper, and it should be her duty to carry out the instructions of the medical staff as represented by the resident medical officer.

Unhappily the great majority of hospitals and infirmaries throughout the country are constituted on a wrong basis. Certain benevolent citizens, anxious to relieve the sufferings of a local population, found an institution, endow it, or place it in a position to be supported by subscriptions, and then offer medical appointments to the practitioners of the neighbourhood. This is beginning at the wrong end. It is like providing a suit of clothes and finding a man to fit them. A medical institution should be medical all through. To establish a lay authority and *employ* professional men as servants or agents in the work of treating the sick is to create an utterly unworkable system. The primary object of a hospital is to cure the sick; the purpose of affording the poor a shelter and necessary comforts while they are under treatment is secondary. It is for those who undertake the cure of the sick to determine how they shall be housed and fed and tended during illness, because these services are subsidiary, and ought to be made tributary, to the main purpose—namely, cure. Committees of laymen do not easily recognise the principle we have laid down, or if they do they refuse to adopt it as the guiding law of their conduct, and the only basis of a satisfactory organisation.

It may appear, at first sight, that the troubles which have occurred at Macclesfield, being chiefly of a domestic character, scarcely stand in the same close relation to faults of constitution as other troubles elsewhere; but it will be apparent on consideration that if a matron can in *any* matter dictate to the medical officer of an institution, she must be wholly out of her place, and a ruling power instead of an upper servant, which the matron of a hospital or infirmary ought, we contend, always to be. Public institutions, especially those constituted for medical purposes, need to be ruled by men. Women, in so far as they have any place in them, should be content to be servants, and obey. Unfortunately, the honour and excellence of obedience are qualities which women who aspire to even quasi-public positions are slow appreciate, or wholly fail to perceive.

Annotations.

"Ne quid nimis."

SCURVY.

DR. BUZZARD, in a letter which appeared in our columns last week, considers the fact that the crew of the *Eira* were supplied with *preserved* vegetables tells against the supposition advanced by Mr. Neale, that if Arctic voyagers were to feed only on the flesh of the animals supplied by the country they would be able to dispense with lime-juice. The truth is, it is an open question with many as to the relative antiscorbutic properties of *preserved* vegetables, and whether under the circumstances in which the *Eira's* crew were placed they would have been sufficient, in the absence of lime-juice and fresh meat, to have preserved the crew from scurvy. A case in point is the outbreak that occurred on board the *Adventure*, in the surveying voyages of that vessel and the *Beagle*. The *Adventure* had been anchored in Port Famine for several months, and although "pickles, cranberries, large quantities of wild celery, preserved meats and soups, had been abundantly supplied," still great difficulty had been experienced in obtaining fresh meat, and they were dependent on an intermittent supply from wild-fowl and a few shell-fish. Scurvy appeared early in July, fourteen cases, including the assistant-surgeon, being down with it. At the end of July fresh meat was obtained; at first it seemed to prove ineffectual, but an ample supply being continued, the commander was able to report, by the end of August, "the timely supply of guanaco meat had certainly checked the scurvy." This is an instance in which articles of diet having recognised antiscorbutic properties proved insufficient, in the absence of lime-juice and fresh meat, and under conditions of exceptional hardship, exposure, and depressing influence, to prevent the occurrence of scurvy. So with the *Eira*, we believe that had they not fortunately been able to obtain abundant supplies of fresh meat, scurvy would have appeared, and that the preserved vegetables in the absence of lime-juice would have proved insufficient as antiscorbutics. This antiscorbutic virtue of fresh meat has long been recognised by Arctic explorers, and, strangely, their experience in this respect is quite at variance with ours in Europe. It has been sought to explain the immunity from the disease of the Esquimaux, who live almost exclusively on seal and walrus flesh during the winter months, by maintaining that the protection is derived from the herbage extracted from the stomach of reindeer they may kill. In view, however, of the small proportion of vegetable matter that would be thus obtained for each member of the tribe, and the intermittent nature of the supply, it can hardly be maintained that the antiscorbutic supplied in this way is sufficient unless there are other conditions tending in the same direction. And of these, one, as we have already stated, consists probably in the fact that the flesh is eaten without lactic acid decomposition having taken place, owing either to its being devoured immediately, or from its becoming frozen. The converse being the case in Europe, where meat is hung some time after rigor mortis has passed off, and lactic acid develops to a considerable extent. This seems a rational explanation, and reconciles the discrepancy of opinion that exists between European and Arctic observers with regard to meat as an antiscorbutic. In bringing forward the claims of the flesh of recently killed animals as an antiscorbutic, it must be understood that we fully uphold the doctrine that the exclusive cause of scurvy is due to the insufficient supply of fresh vegetable food, and that it can be only completely cured by their administration; but if the claims advanced with regard to the antiscorbutic qualities of recently slaughtered flesh be proved, then we have ascertained a fact which ought to be of the greatest practical value with regard to the conduct of exploring expeditions, and every effort should be made to obtain it. Everything, moreover, conducive to the improvement of the sailor's dietary ought to receive serious consideration, and it has therefore seemed to us that the remarks of Mr. Neale and Dr. Lucas are especially worthy of attention, whilst we think the suggestion of the former gentleman with regard to the use of the blood of slaughtered animals likely to prove of special value.

RARE TRAUMATIC ANEURISMS.

IN the July number of *Gaillard's Medical Journal*, Drs. Fenger and Lee, of Chicago, publish an interesting account of six cases of aneurism, each of which is well worthy of record and study. Two among them are of such rarity that we record their prominent features. A man, aged twenty-eight, received a bullet-wound just below the right orbit, and extending to the outer side of the nasal process of the superior maxilla. This was followed by a good deal of ecchymosis and inflammation, and by great pain on any attempt to open the mouth. After a week the swelling had subsided, but slight tumefaction of the right side of the neck remained. The man now resumed work; but on the fifteenth day after the injury he called on Dr. Lee, complaining of inability to speak or swallow, and of severe pain and stiffness of the right side of the neck. The tonsils and soft palate were so swollen that the back of the pharynx could not be examined. On the hard palate a small firm tumour, about the size of a hickory nut, was felt. Thinking this might be the bullet, Dr. Lee made a small incision over it; this was enlarged, some clotted blood was removed, and then followed a gush of bright arterial blood, which was quickly fatal. At the autopsy, a large cavity filled with old and recent clots was found bounded by the pharynx, the upper cervical vertebræ, and the stylo-hyoid and stylo-glossus muscles, with a prolongation extending to the swelling on the hard palate. About an inch above the bifurcation of the common carotid artery was a circular opening in the internal carotid vessel, and a second similar one in the opposite wall of the vessel. The bullet was found lying on the adventitia immediately outside this posterior opening. The second case was that of a man, aged nineteen, who received a bullet-wound an inch to the left of the middle line of the back of the neck, on a level with the mastoid process. There was immediately considerable arterial hæmorrhage, which was arrested by bystanders, and then at once swelling about the left angle of the lower jaw occurred, extending upwards and forwards on to the face, and also into the floor of the mouth. The wound was dressed antiseptically. On the ninth day the swelling below the ear pulsated, and there was a distinct aneurismal bruit in it. The left common carotid artery was accordingly ligatured. In a fortnight the patient was well enough to be up all day, the operation wound being almost closed, and the bullet wound quite healed. The man complained of a feeling of pulsation below the left mastoid process, but neither pulsation nor bruit could be detected by examination. Four days later, while undergoing examination in a law court, the man experienced severe pain, and the sensation of pulsation became more intense. The swelling and pulsation increased, and it was evident that the aneurism had recurred. Dr. Fenger determined to operate. An incision was made along the upper half of the anterior border of the sterno-mastoid muscle, and a transverse one from the top of this back through the insertion of the sterno-mastoid. The sac of the aneurism was then opened and the clots turned out, when blood was found to be poured out from the bottom of the cavity, and on further laying bare the parts it

was found to issue from the vertebral artery, where it lay on the arch of the atlas. The vessel, which was here nearly as large as the internal carotid, was tied. While this was being done the respiration and pulse stopped, but under artificial respiration and subcutaneous injections of whisky he man recovered sufficiently to allow the wound to be dressed. Subsequently transfusion of defibrinated blood was performed with marked benefit, and the patient ultimately made a perfect recovery.

THE DEFORMATION OF THE BODY DURING SCHOOL LIFE.

AN interesting paper on the above subject was read at the recent Geneva Congress by Dr. Dally. The Swiss Governmental Department of Public Instruction had summoned many members of the teaching body under their jurisdiction to attend the sitting, in order to listen to the various opinions and recommendations on the subject. In his opening remarks, Dr. Dally alluded to the fact that Dr. Chaussier, out of 23,200 newly-born infants examined for this purpose, only found 122 possessing any abnormal peculiarities, and these he counted rather as monstrosities than deformities, being in most cases hare-lips. Thus he argued that a child is straight when it goes to school, and he attributes to the enforced maintenance of one attitude for a length of time the corporeal deformations which are displayed at a later period; the various portions of the juvenile organism are easily displaced, and if the cause continues such displacements become permanent. He further advocated more attention being paid by doctors to the medical aspects of school life. He contested the assertions that muscular action was capable of producing deformations, and that gymnastic exercises could remove them. A point of essential importance, according to Dr. Dally's theory, is the maintenance of the suppleness of the lumbar region, and he condemned the habit of supporting the body on one side only, either in sitting or standing. He remarked that school girls usually stand on their right leg, and attributed this custom (which is to be deprecated) to the fact of their usually inclining towards the left side the weight of the body when sitting down. This last-named position of the body being necessitated in a great degree by the modern system of slanted writing, it was argued by Dr. Dally that a return to a more upright style of penmanship is advisable.

A CASE OF CESSPOOL POISONING.

A SINGULAR case of cesspool poisoning has been reported from Lyons by M. Bouveret. Although not altogether unique, it is at least unusual, and is of interest on account both of the symptoms and of an attempt which was made to save the patient by the transfusion of blood. A man, aged twenty-one, was proceeding to empty a cesspool, when he fell into it. He remained in it for a few minutes, at least five, possibly more, and was extracted with difficulty by means of ropes. He was insensible, and all means to restore consciousness being unavailing, he was brought to the hospital a few hours later. His lips were then livid, the conjunctivæ injected, the eyes fixed and turned upwards, the pupils dilated and insensitive to light. Respiration was frequent, sixty per minute; the pulse extremely rapid, but regular and fairly strong. He could not be made to swallow, but from time to time uttered a prolonged cry, and violent tonic spasms occurred in the muscles of the limbs, trunk, and neck, almost as severe as those of tetanus, so that the tongue was bitten. The treatment at first adopted consisted of inhalations of oxygen, which were continued for several hours; but the convulsive attacks continued, and a few hours later the temperature was 103° F. As the patient's condition was extremely critical, transfusion was employed; about 300 grammes of blood were withdrawn from the arm, and 120 grammes of blood obtained from the patient's mother, and defibrinated, were injected. No improvement, however, could be observed. The temperature rose to 104° and the convulsions continued. Death occurred about twenty-four hours after the accident, with a temperature of 105°. At the post-mortem examination the blood was found to be black and fluid. The lungs were extremely congested, and there was bright hyperæmia of the bronchial mucous membrane, but no coagulation in the pulmonary artery. Congestion of the kidneys was also present. M. Bouveret, in commenting on the case, regrets that the blood was defibrinated, and that a larger quantity was not injected, thinking that to these two circumstances the inutility of the transfusion may have been due. This proceeding does not appear to have been adopted in any similar case. Sulphide of ammonium is believed to be the chief toxic agent in the contents of cesspools It is a poison of the blood, acting in the same manner as carbonic oxide, fixing itself on the red globules, from which it drives the oxygen and renders them unable to perform their proper function. In cases of poisoning by carbonic oxide transfusion has been employed with success. Twelve such cases were collected by Casse in 1874, and in six of them the transfusion was successful. Eulenberg and Landois have recommended this proceeding in phosphorus poisoning, and it was employed in one case by Jurgensen, apparently with the result of saving the patient. In poisoning by nitrobenzole it has been employed without result. In many of these cases inhalations of oxygen have proved signally beneficial. Possibly its inutility in the case now recorded was due to the toxic agent. It is probable that cesspools contain gaseous poisons far more complex and more virulent than sulphide of ammonium, and that their action on the organism is at once more profound and less simple.

FEEDING LUNATICS.

THERE are few petty operations so difficult as feeding a refractory lunatic. Even with the greatest care and consideration the procedure may do harm. It is no reflection on the management of our asylums to offer the remark that, perhaps, there is too much forcible feeding. If there were more time to spare, and greater personal address on the part of attendants, there would be less need for recourse to the tube. We know men who have had the management of large numbers of violent and obstinate insane folk and yet scarcely ever found occasion to feed by force. It is very much like passing the catheter in hysterical cases. Much may be accomplished by personal influence and the exercise of an authority, which is instantly sacrificed the moment an insane patient comes to look upon his medical attendant as an equal, or even as what is too loosely called a "friend." The necessity for forcible feeding in a lunatic asylum, as elsewhere, is very much a matter of personal discipline, and for the establishment and maintenance of efficient personal discipline more time and care are requisite than can be bestowed on any individual patient treated in a crowd.

TRANSFUSION IN THE SEVENTEENTH CENTURY.

A CURIOUS account of the difficulties of a transfusionist of the seventeenth century has been disinterred by the *Union Médicale* from the "Mémoires of Bouteillier d'Ardenay, published in the year 1670. A certain Dr. Denys, of the University of Rheims, who was, moreover, engaged in teaching mathematics in Paris, had a high opinion of the therapeutic value of transfusion; and one day, seeing a young man running naked through the streets in a state of "dementia," tried the remedy upon him with great success. The patient regained his senses and continued well

for two months, but then relapsed into the same dementia. Denys a second time transfused some calf's blood, which he always employed. The patient this time was improved only, and not cured. At the end of a few weeks he lost his senses entirely, and was again brought by his wife to Denys, with the request that he would once more employ his sovereign remedy. Denys hesitated on account of the man's weakness, but yielded to the wife's solicitations. During the operation, as soon as the blood of the animal began to flow through the veins, the patient suffered such insupportable torments that Denys was obliged to desist. The man died six hours afterwards, on which the grateful widow sued Denys for damages for having killed her husband. Denys, however, brought a reciprocal action against the widow on the grounds that she had attempted to poison him. At the trial the judgment went in favour of the widow. Appeal followed appeal, and the case ultimately went up to parliament, where it was pleaded by eminent counsel for the widow and for a Paris surgeon, who was involved in the proceedings on the ground that he had assisted Denys. The latter pleaded his own cause in Latin with great ability. The case seems ultimately to have been discharged, but an edict was issued forbidding the practice of transfusion under pain of corporal punishment.

INFECTION AT SEASIDE LODGINGS.

WE are continually receiving cuttings from newspapers and communications of various kinds pointing out—in too many instances very painfully illustrating—the perils of infection which lurk in seaside lodgings to which the weakly or jaded resort for rest and health. There is an irony in the fate which makes these places notorious as centres for the propagation of disease. It is not easy to suggest a remedy, because those who live by letting lodgings regard their visitors as fair game at any risk. If a lodger contracts fever or diphtheria and dies or is removed one week, the bill "to let" will be up again the next week. It has been repeatedly suggested that there should be a systematic registration and inspection of lodgings; but apparently the time has not arrived for the need of such a measure to be publicly felt. Perhaps, when the many cases which are now scattered and therefore overlooked come to be collected and reported *en masse*, public opinion may be stirred in the interests of self-preservation and common sense.

FATTY DEGENERATION OF THE LIVER.

THE diagnosis of fatty degeneration of the liver is often extremely difficult — impossible unless the organ is enlarged, and when it is increased in size often doubtful, since the characters of this enlargement are common also to others. MM. Lépine and Eymonnet have drawn attention to a new symptom of the condition, which they believe to be of considerable practical importance. The former, two years ago, called attention to the value of an estimation of the biliary sulphur of the urine as an evidence of the degree of activity of the liver. The indication now pointed out is drawn from the same source. The phosphoric acid of urine, which is in the form of phosphate, is completely removed by treating it with the magnesian solution and baryta water, so that the filtrate contains no trace of phosphoric acid. The liquid is then evaporated, the residue calcined with nitrate of potash, redissolved in water acidulated with nitric acid, and treated with the magnesian solution; a little phosphoric acid will be found, which has evidently been newly formed. This is produced by the destruction, at the moment of calcination, of the phospho-glyceric acid normally contained in the urine, and which forms an integral part of lethicine. In the normal condition the quantity of phosphoric acid thus produced in normal urine is extremely small, and does not exceed a centigrammo—i.e., is not more than the two-hundredth part of the amount of urea contained in the same volume of urine. In several cases of fatty liver the observers have found that the amount, in proportion to the urea, was increased five-fold, or even ten-fold. At present, in no other condition, physiological or pathological, have they met with a similar increase. To what is this fact to be ascribed? Some years ago Dastre and Morat pointed out that the fat of the liver, like many other forms of fat found in the economy, contains lethicine. Lépine and Eymonnet have verified this statement by the direct analysis of livers which were in a state of fatty degeneration, and they have found, moreover, that the amount of lethicine under these circumstances is very large, amounting to no less than 3 per cent. of the fresh organ and 15 per cent. of the dried tissue.

THE INFLUENCE OF ALTITUDE ON HEALTH.

THIS subject (which was one of special local interest) was treated at some length at the Geneva Congress by the president, Dr. Lombard. He attached particular importance to the hygienic advantages to be derived from moderate altitudes of, say, 1500 to 3000 feet, in contradistinction to the effects produced by the more lofty portions of the mountainous regions of Switzerland and other countries. He dwelt on the advantages of the Engadine as a residence for persons of consumptive tendencies, and also described some of the sanatoria in the Himalaya Mountains. M. Paul Bert, while agreeing with the general principles laid down by Dr. Lombard, contributed some interesting details as to experiments he had made in his own person (in conjunction with several scientific friends) with a view to proving the efficacy of the inhalation of oxygen as a restorative process in cases where the excessive rarefaction of the atmosphere at extreme altitudes produces a kind of asphyxia. The general tendency of M. Bert's theory is to supply the oxygen which is wanting in the air at such heights, and the experiments he and his friends made consisted of the production, by artificial means, of this "mountain-sickness," and its removal by the inhalation of air with a full proportion of oxygen. The subsequent experiences of aeronauts tend also to prove that the inhalation of oxygen is an immediate remedy for the quickening of the pulse and of the respiration, the headache, somnolence, and partial loss of reason, which are amongst the symptoms of the injurious effects of extreme altitudes.

THE INFLUENCE OF BLOOD PRESSURE UPON CARDIO-INHIBITION.

MESSRS. SEWELL and DONALDSON, assistants of Professor H. Newell Martin, have been investigating the effect of alterations of blood pressure within the cavities of the heart upon the inhibitory function of the pneumogastric nerve. Their mode of experimenting and the results obtained are set forth in a paper published in the current volume of the "Transactions of the Medical and Chirurgical Faculty of the State of Maryland." The animals mostly employed were the frog and terrapin. The animal was beheaded and pithed, one cannula inserted into the inferior cava, and one into the innominate artery or one of its larger branches, and all the other vessels leading to and from the heart were tied. Defibrinated blood flowed into the venous cannula under constant pressure, which could be raised and lowered at will; the arterial pressure could be measured and varied in a similar manner. Both vagi were prepared for electric stimulation. With increase of the venous pressure while the arterial pressure remained constant, it was found that the inhibitory effect of an electric stimulus was lessened. Thus with a venous pressure of 2 cm. the heart's beats at

5·4 per 10 secs. were reduced by stimulation of the vagus to 3 in 10 secs.; when the venous pressure was raised to 8 cm. the same electric current had no effect in slowing the heart. On the other hand, variations of the arterial pressure were found not to have any effect upon the action of the vagus. Again, increased pressure upon the interior of the ventricle during diastole, which was necessarily associated with increased resistance to the auricular systole, had no influence upon the vagus action; but if blood found its way back into the auricles during their diastole, then the effect noted above was obtained. Subsequent experiments showed that the effect was the same whether the increased pressure was brought to bear upon the auricles or the sinus venosus during diastole. Many experiments were made on dogs to ascertain whether the effects were the same in the mammal, but owing to special difficulties in carrying out such investigations in warm-blooded animals, no satisfactory results have yet been obtained. But so far as could be ascertained, it seemed that increased venous pressure causes in the mammal also a lessening of the cardio-inhibitory action of the vagus.

BRISTOL GENERAL HOSPITAL.

AT the half-yearly general meeting of the Board of Subscribers to the General Hospital of Bristol, held last week, the President (Mr. Proctor Baker) related the circumstances under which the committee had felt compelled to authorise extensive and costly alterations to be made. Early in the summer unpleasant smells were noticed in the hospital, and a little later on an outbreak of diarrhœa occurred among the in-patients. Mr. Eassie was requested to report upon the sanitary condition of the building, and he found that not only was the ventilation of the wards imperfect, but that the drains which were connected with the main sewer were not ventilated and were clogged with foul matter, and that the arrangements were altogether so imperfect that there was a constant escape of sewer-gas into the hospital. He also reported that the only satisfactory way of dealing with the evils was to make an entire and radical alteration in the system of drainage. The medical officer of health and the city engineer were also consulted, and could only concur in the advice tendered by Mr. Eassie. It was then suggested that the closure of the hospital for these repairs was a suitable opportunity for re-laying the floors, the cement having proved so unsatisfactory; and the wooden floor which was laid experimentally having been found to be far superior, it was accordingly recommended that the whole hospital should be re-floored with wood. The committee wisely determined to sanction both of these schemes, which are estimated to cost nearly £7000, but which are necessary to make the hospital worthy of the time and of the city of Bristol. We congratulate the committee on its courageous determination that nothing shall be lacking on their part to ensure attainment of the object of the great institution under their management, and we are confident that the citizens of Bristol will show their appreciation of such honourable and enlightened conduct by supplying the authorities with the necessary funds.

THE TREATMENT OF POLYDACTYLISM.

ONE or more supernumerary digits, or polydactylism, is one of the most frequent of congenital deformities. It presents, however, considerable variety in its nature. In some cases there is only a mere rudiment of a finger or toe consisting of skin and fibro-cellular tissue with usually a small piece of cartilage in the centre, adherent to one of the fingers, and more common on the inner than the outer side of the hand. In other cases the digit is perfectly formed and articulates either with the shaft of a phalanx or a metacarpal bone of another digit, sometimes in common with the normal finger, with a broad head of a metacarpal bone, or in still rarer instances upon one extremity of a bifurcated metacarpal or metatarsal bone. Cases are also met with in which the additional finger or toe has been united along its whole length with the next digit—a combination of polydactylism and webbed finger. Where the digit is a mere rudiment, it is always an unsightly and useless appendage, and should be removed at quite an early age by division of the pedicle with the ligature, knife, or, as recommended by M. Polaillon, the galvanic cautery. Where, however, the digit is fully formed and supplied with muscles so that it shares in the movements of its fellows, it becomes a question whether it should be removed, the answer to which depends upon the utility of the supernumerary digit and the extent of the deformity occasioned by it. The removal of these digits is a perfectly simple operation; but when they articulate with a metacarpal bone within the same capsule as the normal digit, there is a danger of exciting inflammation in this joint, and of so causing anchylosis. To obviate this M. Sédillot advised that in such cases the amputation should be made through the base of the digit to be removed so as to leave the articulation intact. This plan has been generally adopted of late years, but there seem to be reasons for modifying Sédillot's advice. In the first place, we are now enabled to open healthy joints without exciting inflammation or running the risk of anchylosis. And in at least three cases the base of the digit left behind has subsequently grown, and in part reproduced the deformity. M. Chrétien, to whom such a case has recently occurred, has suggested that the explanation of this is that the base of the phalanx is ossified from a separate epiphysial centre, and that when the amputation is so performed as to leave the epiphysis unimpaired it may continue its independent development. In the rare cases of a bifid metacarpal bone the amputation should be made at the point where the shaft of the bone bifurcates. There is, of course, less reason for undertaking any of these operations in the foot than in the hand.

CERTIFICATION OF DEATH IN DOUBTFUL CASES.

THE *Bristol Daily Mercury* reports an inquest on the body of a young woman, Elizabeth Hemfield, at Hallowtree Inn, Hallowtree, who a few weeks before had been a patient at Newport Infirmary, under the care of the house-surgeon. No medical man saw her at Hallowtree, and the accounts of her last illness, as reported, are too meagre to base any opinion on. Mr. Perrin was called, but found the patient dead. The house-surgeon of Newport Infirmary under these circumstances was applied to, and reluctantly gave a certificate of death from consumption, of which at some period she had presented symptoms. It should also be stated that this gentleman (Mr. R. H. Dowse, M.B.) said at the inquest that two and a half years since he had removed a polypus from the uterus. Other evidence, however, was imported, not of a convincing but of a suspicious character, pointing to miscarriage, if not to the production of abortion by unfair means. The deceased herself had said that she had undergone an operation about a week before coming to Hallowtree; the appearances of the breasts were suspicious, as well as of the sheets showing great hæmorrhage. A post-mortem examination by Mr. Perrin confirmed these suspicions. Under these circumstances, after deliberating a few minutes, the jury returned a verdict of death from hæmorrhage after miscarriage, but that there was no evidence by what means it was caused. They added an expression of opinion that doctors should be more careful in giving certificates.—"The coroner: Do you mean doctors in general, or Dr. Dowse?—The foreman: Doctors in general." Juries, however, should confine themselves to the facts of the particular case under consideration. We do not think that doctors often give certificates in this

way, and Mr. Dowse only did so in this case on the representation of friends that an inquest might be prevented by his doing so. The case, however, should serve as a caution in such matters.

TUBERCULOSIS OF THE TONGUE.

DR. THOMAYER, of Prague, describes three cases of tubercular ulceration of the tongue. In one a wide fissure existed about the middle of the dorsum, with yellow-coated base, and prominent coarse tubercular nodules at its margins. In both lungs there was widespread tubercular disease. In the second case the ulcer occupied the right half of the tip of the organ, and was characterised by numerous firm granulations in part of its base, the rest being covered by a thick yellow layer; the margins of the ulcer were also firm, beset with grey and yellow granulations. The ulcer bled slightly, and was not benefited by treatment. The third case was similar, only the ulcer was seated on the frænum. It was treated by the topical application of chloride of zinc, which produced only temporary benefit in the breaking down of the nodules. Microscopical examination was made of the diseased organ in the two fatal cases. The ulceration had destroyed the mucous membrane and submucous tissue, and the base was formed by a thick layer of small round cells, intersected here and there by muscular bundles. Beneath this layer, there spread into the intermuscular spaces masses of similar cells, which, under high powers, were found to consist partly of giant-cells, and to be separated by the delicate stroma of tubercle. Some isolated tubercles were found deep in the substance of the organ. The muscular fibres themselves seemed invaded by the cell-growth, which was not limited to the intermuscular spaces. There was proliferation of muscle nuclei and of endothelium of the blood-vessels. Dr. Thomayer says that the extent of the lesion demonstrates the futility of treating these ulcers by caustics, and points to the advisability of excision.

THE DISSEMINATION OF SCARLET FEVER.

IN his second recently delivered Ingleby Lecture on Scarlatina, published in the current number of the *Birmingham Medical Review*, Dr. R. C. R. Jordan makes the following remarks upon the mode of dissemination of the disease, which put the facts in a concise form. He says:—"Of the means by which the infection of scarlet fever is spread little is known with certainty; there is no proof that it can be disseminated through water, or by milk-walks, except by the agency of the milkman or his clothes, as in the case of typhoid fever; no evidence that the dejections can contaminate wells, or that the poison can be conveyed by drainage; there is no proof that it can be taken into the stomach by the agency of food or drink. The popular fallacy of its being carried by the desquamating epidermic scales has no evidence in its favour. There is a strong probability, amounting almost to certainty, that it can be taken in by the breath, and probably from the breath where there is sore-throat, long before the period of desquamation. Surgical cases in the vicinity of the epidemic give every proof that it can be absorbed by wounds or raw surfaces, as in direct inoculation, though this last process seems not to be often effectual when intentionally tried. Surgical scarlet fever is, curiously, almost always mild in character. The tendency to infection seems equally strong in puerperal cases, where the disease, on the contrary, generally assumes a very malignant type. The virus can plainly be carried by means of clothes, or even by less probable agents, as books or papers. There is every proof short of absolute demonstration that it may be conveyed by a laundress, from the mingling of healthy with infected clothes; it can contaminate cabs or railway carriages; and it has a great power of inherent vitality."

ALCOHOLISM IN RUSSIA AND IN ENGLAND.

WHATEVER there may be inconvenient or objectionable in the rivalry between Russia and England, there is one movement in both countries in which rivalry cannot be too keen—namely, one to abate the amount of drunkenness. On this subject we would strongly commend to the attention of our readers an article in the September number of the *Nineteenth Century*, by Olga Novikoff, *née* Kiréef. This Russian writer quotes figures from the *Journal de St. Petersburg*, showing the annual consumption per head in litres in Russia, England, and Germany:—

	Alcohol.	Beer.
Russia	10	$27\frac{1}{12}$
Germany	$3\frac{1}{2}$	88
England	$5\frac{1}{2}$	143

He thinks these figures hardly justify the complacency with which England is apt to denounce Russian intemperance. He says that Russian peasants spend 10*s.* each, on an average, in strong drink, the English £4. In Great Britain thirty-two millions of people spend £136,000,000 annually. In Russia ninety millions spend about £50,000,000. It is gratifying to know that the Government, the Greek Church, and the people themselves, through their communal institutions, are all alive to the national degradation and disgrace caused by drink, and are all engaged in attempts to increase national and individual temperance. The Government of the present Emperor has especially distinguished itself in this way. It took the initiative in opposing the "traditional custom (drinking) of the sage and laborious portion of the population on holy days and family solemnities." It appointed a commission of experts, selected from the zemstvos of the empire for their special acquaintance with the subject to be discussed. As in this country, the question of national revenue painfully checks the proper consideration of this question. But it is clear that English statesmen will have to face it in its moral aspects as well as in its financial ones if they are not to be outdone by Russian statesmen. The chief recommendations of the Commission are:—1. Liberty to communes to close all places for the sale of drink. 2. Permission to communes to establish communal monopolies of the sale of drink. 3. No public-houses to be established above 25 per cent. in excess of one per thousand of the population. 4. Tea and food to be sold at all places where drink is consumed on the premises. 6. Rigorous supervision of public-houses by local authorities. We cannot give more space for a notice of this article, which, in spite of a little satire, not to say ill-nature, is a most interesting one.

A CASE OF HERMAPHRODITISM.

ON Monday last one of the patients in the British Lying-in Hospital was delivered of a living child, which upon examination was found to present the characteristics of so-called spurious hermaphroditism. When the child was seen two days after birth the condition of the external genitals was found to be as follows:—There is a large penis or clitoris, with a prepuce bound down by a strong frænum. Immediately below this is a small canal capable of admitting a good-sized probe, and from which urine is voided. The penis (?) is of natural size for a newly-born infant, and presents at the apex a well-marked depression, resembling the external urinary meatus. The scrotum (?) is divided, and resembles the female labia, but no trace of testes can anywhere be discovered. So equivocal are the appearances that it is at present impossible to determine the sex of the child. Dr. Fancourt Barnes, whose patient the mother is, seems to incline to the opinion that the type is rather feminine than masculine. If the child live, it will in all probability be shown to the members of the Obstetrical Society, when the problem of the sex may be solved.

THE PROFESSION OF LIVERPOOL AND INFECTIOUS DISEASES.

A COMMITTEE of the medical profession of Liverpool and its neighbourhood has been held. It suggests, in place of a bare notification of infectious disease, which it thinks would be valueless, a local Bill, including the following powers:—

1. To obtain from every dispensary and district medical officer early notification of cases of infectious disease, in the same manner as is now done from recently appointed medical officers of district schools and parochial medical officers, a fee of 2*s.* 6*d.* being paid for each certificate so forwarded. 2. To give to every other medical man the option of making early notification on similar terms. 3. To make Section 90 of the Public Health Act applicable to Liverpool, a proceeding which would impose the duty of early notification of the tenants-in-chief of every sublet house in the city below a certain rental, and which would give the sanitary authority the power, which they do not now possess, of compulsory removal to hospital in cases which should seem to require it. 4. To demand that School Board authorities shall require from every child who shall have been more than two days absent from school a certificate to the effect that neither he nor any member of the family with which he resides is affected by an infectious disease. 5. To appoint special medical inspectors of dairies under the Contagious Diseases (Animals) Act. 6. To obtain a place of refuge or quarantine, in which, in case the closure of dwelling-houses should be deemed necessary in consequence of infectious disease, the uninfected inmates might be temporarily lodged. 7. To hire nurses for attendance on those suffering from infectious disease who should be retained in their own house. 8. That early application should be made to the Local Government Board for the right to make house-to-house visitation, to provide for the speedy interment of the dead, &c., on the outbreak of any epidemic disease.

We cannot say that these suggestions, said to have been adopted by the profession in Liverpool, supersede, in our judgment, the necessity for a system of compulsory notification by the householder. Under such a Bill notification by the doctor is optional, and he is to get a fee for it. Would this place the profession in a dignified or convenient position? The other powers are a part of a great system of public medicine, which we cannot discuss now. One of these, however, we may say, will give great trouble to medical men—a medical certificate from every child who has been two days absent from a Board School. It seems to us that the profession in Liverpool would do well to give their help to a system of notification by the householder. This would be an educating piece of legislation, and one that would afford a basis for more elaborate requirements, such as are specified in their report.

THE ALLEGED INCREASE OF LUNACY.

THE appearance of the annual report of the Commissioners in Lunacy is, as usual, being made the occasion for a revival of the outcry for further "asylum accommodation." This is particularly unreasonable in the year of grace 1882, because, taking the worst possible view of the matter, the increase of January, 1882, upon January, 1881, is actually *less* than that of January, 1881, upon 1880. The increase, such as it is, exists almost exclusively—this year wholly—in the class of paupers; and while the pauper patients returned for the 1st of January, 1881, numbered 1801 more than the total returned for January, 1880, the pauper patients counted on the 1st of January, 1882, numbered only 1717 more than the total returned for January 1st, 1881. Assuming these figures to be correct—we are dealing with them at second-hand—it is difficult to find anything to justify the alarm which appears to have been excited in certain quarters. The truth is, there is *no* solid reason to suppose lunacy is increasing at a greater rate than the population increases. What seems to be increase in the asylum populations is really accumulation, caused by the wholesale certifying of "lunatics," and increased longevity due to the improved care and treatment of the inmates of asylums, and therefore creditable to our philanthropy.

HYALINE DEGENERATION.

IN the last number of Virchow's *Archiv*, Dr. MAX VALLAT describes in detail the process of hyaline or fibrinous degeneration of tubercular formations—a change which has only received full attention of late years, although it is not infrequent in other structures, especially in the walls of arteries. In tubercles, it is best observed in those which occur in the spleen, lymphatic glands, and liver, and is to be regarded as an early stage of caseous degeneration. Dr. Vallat concludes that it is formed from the reticulum of the peripheral zone of the tubercles, and also from the trabecular tissue of the spleen and lymphatic glands, the bands becoming thickened, homogeneous, and glistening, whilst the spaces between the original fibres become converted into narrow channels in which only the nuclei of the cells that formerly existed there remain. In the tubercle it also replaces the epithelioid and giant cells, the former appearing to be converted into homogeneous non-nucleated masses. The precise share taken by the giant cells in the formation is unknown. The channels left between the degenerated and swollen bands allow of the passage of fluid and pigment particles into the interior of the tubercle. In caseating the material breaks up into a finely granular mass, and is often found to be beset with nuclei, either the relics of previously existing cells or immigrants from surrounding vessels.

PROPOSED INTERNATIONAL HYGIENIC CONVENTION.

A PAPER read at the Geneva Congress by Dr. L. de Csatary (member of the Hungarian General Council of Public Hygiene) recommends the organisation of the above-named convention for the purpose of securing uniformity in national legislation affecting the public health. It is suggested that an international committee of surveillance should be established in order to secure the due observance of such hygienic measures as might be adopted in common by the various nations thus leagued together. A committee was appointed to prepare the scheme in detail for presentation to the next Congress at the Hague, prior to communications being officially made to the authorities of the several countries interested.

DR. KLEIN ON VACCIN CHARBONNEUX.

FROM the subjoined report it will be seen that Dr. Klein has arrived at conclusions—based upon comparatively few experiments, it is true—adverse to the general adoption in this country of Pasteur's proposal to inoculate cattle with anthrax as a prophylactic measure against that disastrous disease. The report has been communicated to the Veterinary Department of the Privy Council by the Local Government Board, and is published in the current number of the *Veterinarian*:—

"Vaccin charbonneux is to be obtained, and is announced to be obtainable (in the *Farmer*), from M. Bontroux, agent of M. Pasteur in Paris (applicants to M. Pasteur are referred to M. Bontroux), and, as I happen to know, it is brought over and sold and used in considerable quantities. The 'vaccin' is sold in tubes (each containing enough lymph for the inoculation of 100 sheep or fifty cattle) as 'premier vaccin charbonneux' and as 'deuxième vaccin charbonneux.' The 'premier vaccin,' according to the printed directions accompanying each lot, is inoculated first; after a lapse of twelve to fifteen days the 'deuxième vaccin' is used in the same manner. The animals thus twice inoculated are

supposed to be immune against fatal anthrax. I have obtained through two independent sources two lots of this vaccin charbonneux (premier and deuxième), and have tested them by experiments. The results of these experiments enable me to say—(*a*) animals inoculated with this 'vaccin' (premier and deuxième) are not made immune against fatal anthrax; and (*b*) both the first and second vaccin may produce fatal anthrax. The following facts prove these propositions:—

"*Experiments with Lot A.*—Inoculated with 'premier vaccin,' two sheep, two guinea-pigs and two mice; no change in any animal. Inoculated with 'deuxième vaccin,' the two above sheep and the two above guinea-pigs. One of these sheep showed rise of temperature, and falling off in food for the first two days after this second inoculation, but was all right again after three days. The two guinea-pigs were dead of typical anthrax within forty-eight hours. The above mice were inoculated with the blood of one of these guinea-pigs. Both mice were dead of typical anthrax within forty-eight hours. The two sheep having been inoculated with the premier and deuxième vaccin ought to have been immune against fatal anthrax. Now see what happened: according to M. Pasteur, the *Bacillus anthracis* of blood of an animal dead of anthrax, when cultivated at 42°—43° C. for twelve days, loses all virulence and becomes thereby converted into 'vaccin.' I had grown the *Bacillus anthracis* of blood of a guinea-pig dead of anthrax at a temperature of 42°—43° C. for *twenty-one days*, and with this culture I inoculated the above two sheep. The result was that both animals were dead of typical anthrax within forty-eight hours.

"*Experiments with Lot B.*—Inoculated with 'premier vaccin' four guinea-pigs and six mice. Within forty-eight hours three of the guinea-pigs and three of the mice were dead of typical anthrax. My method of using the fluids for inoculation absolutely precludes any accidental contamination, and hence these must be accepted as perfectly reliable. This country is comparatively free from anthrax, and therefore the introduction and use of this so-called 'vaccin charbonneux' seems to me most dangerous, and capable of producing incalculable mischief."

THE LATE SURGEON-MAJOR GEORGE SHAW, A.M.D.

VERY great regret is everywhere expressed at the sad death in action at Kassassin Lock of Surgeon-Major Shaw. He had previously served with credit and great devotion in the Afghan campaign, and accompanied the advance of the first field hospital through the Khyber Pass in December, 1878. He was beloved by all who knew him, and endeared himself to the men of the regiments with which he served by his gentleness, his sympathy, and his devoted interest in his work. Every officer and man of the medical service of the army who knew him mourns for one of the most amiable of men who ever served in the army.

TYPHOID IN GOVANHILL.

ANOTHER typhoid fever epidemic, fortunately of rather more limited dimensions than is usual, and pretty clearly traceable to the insanitary condition of a farm supplying the neighbourhood with milk, is reported in the southern districts of Glasgow, namely in Govanhill and part of Crosshill. In all the cases noted the families affected had been getting their milk from dairies supplied by the farm in question. When the farm was inspected, it was found that a common open drain, commencing at the dunghill, ran behind the byres, and within less than a yard of the drain a circular well was situated, the bottom of the well and the drain being almost on a level. The drain was a capacious one. It was supplemented by the smaller drains from the byres and scullery, and was filled with fluid and sewage matter, so that percolation from the drain to the well was very probable. The well was used for household requirements, and for washing the dairy utensils. A case of fever had occurred in the house, but was stated to have been rheumatic fever. Unfortunately, the authorities of the districts in which the epidemic occurred have no power to interfere further than to communicate the facts to the local authority of the country district in which the farm is situated, and, failing attention, the Board of Supervision might be approached. The powerlessness of large city populations in such circumstances is not very reassuring.

THE ASYLUM SYSTEM.

THE following significant passage appears in the twenty-fourth Report of the Commissioners in Lunacy for Scotland: "Dr. Fraser is of opinion that there is an increasing tendency at present both to resort unnecessarily to asylum treatment, and also to detain patients longer than is proper after asylum treatment has been resorted to. 'In proof of the first averment,' he says, 'the reports of many of our medical superintendents of asylums can be put in evidence; for in them are contained complaints of having to admit patients who in their opinion could have been sufficiently cared for in a private dwelling or at home. Many rural inspectors of poor seem to regard the asylums not only as a place for the treatment of the insane, but also as a hospital for the treatment of any form of nervous disease with which mental enfeeblement may be associated, or as a home for aged persons whose faculties are failing; and relatives now prefer the asylum for their paralytic friends to the poorhouse, as the former implies a more dignified form of pauperism than the latter. The question suggests itself to me—has not the misuse of asylums now set in? and I feel forced to reply that I perceive what seems to me unmistakable evidence of a too-ready inclination to resort to them as the only provision for all who suffer under any form of mental unsoundness.'" We believe this to be a perfectly just statement of the plain facts as regards the abuse of asylums in England, as well as Scotland. In presence of the pressure which is everywhere being brought to bear on justices and ratepayers to increase asylum accommodation, it would be well to lay this official testimony to heart.

THE PARKES MUSEUM.

HIS Royal Highness the Duke of Albany has consented to become the President of this Museum, which has recently been incorporated and is now in course of removal to new premises in Margaret-street, W. This is a new proof of the interest which His Royal Highness takes in all questions which affect the public welfare, and we trust that the Museum, under the auspices of its Royal President, will continue the successful career of usefulness which it so well deserves.

FERRUGINOUS LIVERS.

THE presence of an excess of iron in the livers of anæmic patients is a curious fact, of which several instances have been described in Germany. One case was described by Stahel; and Lindenlang, in the liver of a patient with purpura, found a considerable excess of iron. Marchand has lately described the liver of a phthisical patient, aged sixty years, which presented an unusual brownish-red colour associated with evident cirrhosis. The microscope showed an infiltration of the hepatic cells and of the interstitial connective tissue by pigmentary corpuscles, which gave the characteristic test for iron with yellow ferrocyanide. A chemical analysis showed that the ashes contained not less than 30 per cent. of iron. It has been supposed that the excess of iron is the result of an abnormal destruction of red

blood-corpuscles in the organ, but it is open to question whether it is more than the result of the free administration of iron by the mouth.

A BASELESS CHARGE.

THE unfounded charge brought against Mr. Arnold, of Bishop Auckland, Licentiate in Midwifery of the Durham University, in the local police court a few days ago, affords another illustration of the importance of securing the presence of a female friend of the patient in cases where a woman has to undergo an examination by a surgeon. The accusation proved to have been of the most baseless kind, and yet it was one which hysterical patients are apt in similar circumstances to prefer in all good faith, unless reassured by the presence of a third person. We congratulate Mr. Arnold on the unequivocal decision of the chairman of the court, and sympathise with him in the annoyance to which the absurd charge must have subjected him.

TRICHINÆ IN ADIPOSE TISSUE.

IT has been generally assumed that trichinæ occur only in the muscular substance, and are not found in the fatty tissue. Chatin's latest investigations have, however, shown that trichinæ occur uniformly in the latter, where the parasites are free or only loosely connected with the neighbouring tissue elements. Their nature may readily be mistaken, but is shown by the simultaneous occurrence of encapsuled trichinæ in the muscular tissue. Experiments proved that animals fed with trichinous fat exhibited no indications of trichinosis, while others fed with the flesh from the same infected animal quickly suffered and died with symptoms of intestinal trichinosis; although further observations on the comparative innocuity of the fat must be made before the fact can be regarded as of hygienic importance. The practical value of the discovery at present seems to be that the fat, as well as the flesh, of suspected animals should be examined.

SALE OF DISPENSARY LETTERS BY PUBLICANS.

ONE remarkable incident at a late inquest was a statement with reference to the medical letter which the deceased's wife said she had tried to get at a neighbouring publichouse, and which was to be had for threepence. The coroner said he had been informed the letters in question were purchased for distribution by the landlord. It is not entirely new to us. We have heard before of subscriptions to a benevolent institution being used in a similar sort of way by publicans and other tradesmen. They are not exactly sold, but given to customers. Such a use of dispensary or hospital letters should be declared illegal.

MEDICAL AID ASSOCIATIONS.

WE have never withheld our disapproval of wholesale combinations of friendly societies with the view of getting medical attendance for members and their families on terms altogether inadequate. We are neither sorry nor surprised, therefore, to see that such an association at Chesterfield—the Chesterfield Medical Aid Association—is to be wound up for want of funds. It is unworthy of provident societies to try to reduce the remuneration of medical men.

THE latest advices from South Africa represent the epidemic of small-pox at Cape Town as increasing. The outbreak is causing much consternation, and energetic measures are being adopted in the neighbouring towns to prevent the importation of the disease. Vaccination, it appears, is being vigorously carried out.

AT a Quarterly Court of the president and managers of the Aberdeen Royal Infirmary, held on the 11th inst., the question of the extension and improvement of the building again came up for discussion, in connexion more especially with the proposition to erect a ward or wards for the treatment of diseases of the chest. Professor Stephenson suggested a widening of the basis of the proposition, and moved the following resolution, which was unanimously agreed to:—"That, in addition to the question regarding a ward for diseases of the chest, it be remitted to the committee of management to consider and report upon what additional accommodation and improvements are required in the present buildings, and what special wards, if any, are necessary to render the services of the institution more efficient to the public."

WE regret to announce the death from apoplexy of Dr. Waller Lewis, for more than a quarter of a century medical officer at the General Post Office. Dr. Lewis died from apoplexy on the 7th inst., at Whitby, where he had been staying for some days with his wife and two daughters. The reports by him on the State of the Burial Vaults of the Metropolitan Churches, on the Origin and Spread of Epidemic Cholera, and on the Laws in force in France for regulating Noxious Trades, were regarded as of sufficient importance to be presented to Parliament.

THREE lives were lost last week by the falling of a portion of St. Patrick's Cathedral, Dublin, which was undergoing repairs. One of the deceased, a nursery maid, was admitted into the Adelaide Hospital, but succumbed a few minutes afterwards. Her injuries were frightful, and consisted of a fracture of the skull and of the vertebral column, of both femora, and of the right leg close to the ankle. She was buried in the débris with the child in her arms, the latter having escaped with only a lacerated wound over one eye and some bruises.

A VACANCY has occurred in the medical staff of the Dorset County Hospital through the resignation of Mr. J. Good, one of the honorary surgeons. Mr. Good's connexion with the institution extends over about forty years. He was one of the house-surgeons appointed when the hospital was first established, and for the last fifteen years he has officiated as an honorary surgeon. The candidates who have already come forward to fill the vacancy are Mr. E. Good, Mr. J. A. George, and Mr. F. B. Fisher.

SOME time ago a few gentlemen subscribed a sufficient sum to purchase and equip a carriage ambulance for use in Greenock. A few days ago a meeting of subscribers was held, and a committee was empowered to buy one of Howard's ambulances, costing about 100 guineas. The carriage is to be furnished with splints and all necessary apparatus. This is a kind of conveyance much needed in Greenock.

MR. MITCHELL HENRY, M.P., *The Times* states, had the honour of entertaining the Lord Lieutenant of Ireland at his fine seat, Kylemore Castle, Galway, where his Excellency was most hospitably entertained by Mr. Henry, who, as our readers will remember, was formerly surgeon to the Middlesex Hospital.

BY the death of Dr. Waller Lewis the appointment of Chief Medical Officer to the General Post Office has become vacant. The salary is £1000 per annum. Mr. George Carrick Steet, F.R.C.S. (exam.), the second medical officer, will probably succeed Dr. Lewis.

THE outbreak of typhoid at Bangor, though the cases are gradually assuming a milder type, cannot, in point of number of fresh attacks, be said to be on the wane. Forty cases have been reported since Sunday last. The tent hospitals are full, and other means provided of treating the patients are taxed to the utmost extent; whilst the schools remain closed.

THE municipality of Turin lately opened a competition for the best treatise on hygienic science as applied to the requirements of rural districts. The prize has been awarded by the jury charged with the decision to Dr. Layet, professor of hygiene at Bordeaux. It consists of a sum equal to about £100.

THE occurrence of small-pox at Faversham, although not at present of alarming proportions, has led to the resumption of negotiations between the rural and urban sanitary authorities of the town with the view to the erection of a hospital for cases of infectious disease.

THE cholera epidemic at Manilla is declining. An official telegram, dated Sept. 19th, gives the number of deaths on the day previous as 33, 121 having occurred in the vicinity of the town. On the 12th inst. the numbers were respectively 94 and 164.

THE examinations for certificates in Sanitary Science of the University of Cambridge begin on Tuesday, October 3rd. Candidates must send in their names to Professor Liveing, Cambridge, on or before September 28th.

WE regret to hear that Surgeon-Major Hogg has been suffering from cardiac dropsy for the past two months, and is lying in a precarious condition at Morar.

THE annual address at the Medical Society of University College will be delivered by Professor Lister, F.R.S., in the Botanical Theatre, on Oct. 11th, at 8 P.M.

IN consequence of the prevalence of scarlet fever in Chelsea, a house-to-house visitation in various parts of the parish has been made by direction of the medical officer of health.

Public Health and Poor Law.

LOCAL GOVERNMENT DEPARTMENT.

REPORTS OF INSPECTORS TO THE MEDICAL DEPARTMENT OF THE LOCAL GOVERNMENT BOARD.

THE following reports on outbreaks of diphtheria have recently been submitted to the Local Government Board:—

King's Lynn.—Dr. Airy's report deals with an outbreak of diphtheria in King's Lynn during the latter part of 1881 and the early portion of the present year. The town, which has some 19,000 inhabitants, is described as lying on flat alluvial ground on the eastern bank of the Norfolk Ouse at the head of the New Cut, an artificial channel some four miles in length, which discharges into the Wash and gives access to the port of Lynn; it is also intersected by several creeks communicating with the river and admitting tidal water. The water-supply is derived from springs rising from the lower edge of the chalk formation; it is liable to some contamination, but, owing to the strength of the springs, this is perhaps inconsiderable. The ventilation of the sewers is insufficient and also defective in so far as it is carried out by rain-water pipes which opening out under projecting eaves and near windows are liable to convey foul air into dwellings. The privy accommodation is in many instances thoroughly bad, a so-called decomposing cistern, which is nothing but a cesspool, intervening between the closet and the sewers. The early cases of diphtheria consisted of slight and severe sore-throat, with cases of so-called follicular tonsillitis and diphtheritic sore-throat, scattered about in different parts of the town, with rarely any probable clue of personal infection. The outbreak is described throughout as being characterised by a comparative absence of those conditions of personal transfer so usually associated with epidemic prevalences of diphtheria; indeed, out of sixty well-marked cases of the disease in thirty-nine households, the attacks in eleven households only could possibly have been due to school assemblage; only three were believed to have been due to domestic intercourse, thus leaving twenty-five cases of household invasion without any known circumstances of personal communication by which they could be explained. Having regard to this fact, Dr. Airy examines in much detail all the possible sources of the disease. The water-supply, the means of drainage, the system of excrement disposal, are all considered in this connexion, and, though faulty, they do not singly or together suffice to explain the distribution of the infection. Milk was not at fault; the prevalence of epizootic disease and other occurrences also fail to afford an explanation. The question of damp, with the special fungoid growth attendant upon it, to which diphtheria has often been attributed, is not dealt with; and though many of the houses affected exhibited these special conditions, yet dampness is too common a condition in Lynn, with its foggy air and many creeks, to account for an occasional outbreak. It is interesting to note that some of the mould and fungic mycelium found in houses where sore-throat prevailed was carefully examined by a skilled mycologist, Mr. C. B. Plowright, medical officer of health for an adjoining district, and the exact nature of the cryptogamic growths was identified. But none of these conditions afforded any solution of the difficulty in which Dr. Airy found himself placed as regards the cause of the disease, and he finds himself almost involuntarily thrown back upon the supposition of an atmospheric infection. The report describes how there had recently been a digging out of the mud of the ancient river-bed and of a creek which had been a sewer to the north of the town, and Dr. Airy proceeds to inquire whether this process can have liberated into the air long-buried germs of indigenous diphtheria, causing microzymes possessing a vitality and endurance and power of survival similar to that possessed by the organism which causes malaria, a disease which had formerly prevailed in this very locality. The discussion of this is very exhaustive, and it certainly appears that if any infection of the air did thus result which could have brought about diphtheria, the conditions and direction of the wind-currents corresponded in a remarkable manner with those occurrences, certain districts being affected by the disease a few days after the prevalence of a wind favouring the conveyance of infection from the works to the localities in question. Several groups of cases do not admit of any such explanation; but when once a poison like diphtheria is scattered about a town having faulty sanitary arrangements such as obtain in Lynn, and possessing many channels by which personal infection could operate, it must be admitted that the distribution of a specifically poisonous matter such as is associated with diphtheria by more than one channel is more than probable. On the whole, Dr. Airy concludes that the history of the early cases appeared to lend some countenance to the theory of aerial infection due to the excavations referred to.

Sale.—This township, in the north of Cheshire, is reported by Dr. Parsons to have a flat surface ending on the north in a low escarpment overlooking the Mersey marshes, which are liable to floods, and hence are not built on. The soil is a light porous sand and gravel resting on clay. The town, which has a population of some 8000, is provided with wide streets, a modern system of sewers which is apparently efficiently ventilated and well flushed, and a constant service of wholesome water. In 1880 there were 8, and in 1881 26 diphtheria deaths in Sale, and some 80 cases were reported during the course of the inspection, the disease having been almost continuous during 1881 and the first three months of the present year. Sale is in such relation to Manchester and other populous districts that no information could be elicited to explain the origin of the epidemic. Some of the early cases were found to have been associated with obvious local sanitary defects; but this was not universal, and it is certain

that the streets in which the poorest and the most careless classes lived did not suffer more in proportion than others. But in two small areas of about 100 to 200 yards radius as many cases seem to have occurred as in the remainder of the district. Here at least, it might have been hoped, lay some explanation of the method of diffusion. But all known hypotheses are discussed in the report without any satisfactory result. Infection from personal intercourse, and especially through school attendance, propagation by wind, the water-supply, the milk-supply, the influence of offensive trades, and refuse accumulations along the canal banks, and the emanations from sewers, are all considered in turn, but with no result. It is, however, shown that in a considerable number of houses in which diphtheria appeared, marked local sanitary defects were found, these consisting mainly in nuisances arising from midden-privies of faulty construction and situated too close to houses, and of defective drains admitting soakage into the subsoil and escape of drain-air into the dwellings. The poison of diphtheria having once found a resting-place in a district, it is notorious that these conditions favour its continuance; and Dr. Parsons points out, as regards Sale, that on the hypothesis that diphtheria has its origin in a living micro-organism, it is conceivable that in a moist and porous subsoil contaminated with decaying sewage matters, this organism may find conditions favourable to its growth and development.

Sutton-in-Ashfield.—This small market town is described by Dr. Parsons as having a population of 8523, and as being situated on the western border of Nottinghamshire. It occupies a plateau at an elevation of about 500 feet above the sea; the town itself lying, however, in a depression through which a brook flows. Geologically, the district is chiefly composed of magnesian limestone, a fissured and permeable rock, below which are the coal measures; to the north-east of the town are the red marls of the Permian series and the new red sandstone, which latter rock forms to the east healthy gravelly hills. Many of the wells are liable to pollution, cesspool soakage into surrounding soil is not uncommon, slops are thrown about on the permeable strata, many parts of the town are unsewered, and the middensteads are believed to be very generally mere holes in the fissured rock, into which percolation of their contents takes place. Between November, 1881, and the first week of May, 1882, there had been 39 cases diagnosed as diphtheria in thirty households, and 27 cases of scarlet fever in eighteen households. Eleven deaths had resulted from diphtheria and four from scarlet fever. The origin of the epidemic is obscure, and this mainly because of the mildness of early attacks, which were thought only to have been "mumps," but which were shown by such subsequent lesions as paralysis to have been true diphtheria. Scarlet fever seems also to have been inextricably mixed up with the diphtheria, deaths occurring almost simultaneously in the same house being certified as due to "scarlatina maligna" in one case, and to "diphtheria" in another. Indeed, the two diseases were found not only to have existed side by side, but apparently to have been contracted the one from the other, although Dr. Parsons found it impossible to decide whether this had been due to a difficulty in correctly diagnosing between them, or to some mutual or common causation. The mode of spread, too, was by no means clear; but it is surmised that the conveyance of infection from household to household by means of the stocking trade was by no means impossible. Each stocking passes through numerous hands who reside in different houses, and during the epidemic the materials in use certainly passed from infected to hitherto uninfected dwellings, in which disease ultimately occurred. Sanitary defects of a very marked character were found associated with the disease, but it is impossible to say that they were worse in houses having diphtheria than in others which escaped. Certain it is that Sutton-in-Ashfield is in need of an active sanitary administration, and it is especially obvious that it lacks a proper water service.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In twenty-eight of the largest English towns, 5648 births and 3249 deaths were registered during the week ending the 16th inst. The annual death-rate in these towns, which had been equal to 22·7 and 19·9 per 1000 in the two preceding weeks, was 20·0 last week. The lowest rates in these towns were 12·7 in Birkenhead, 15·0 in Cardiff, 15·0 in Derby, and 15·7 in Portsmouth. The rates in the other towns ranged upwards to 28·4 in Blackburn, 28·6 in Hull, and 38·1 in Sunderland. The deaths referred to the principal zymotic diseases in the twenty-eight towns were 634, showing a further decline from the numbers in recent weeks; 323 resulted from diarrhœa, 93 from whooping-cough, 70 from scarlet fever, 67 from "fever" (principally enteric), 45 from measles, 30 from diphtheria, and 6 from small-pox. The lowest death-rates from these diseases were returned in Plymouth and Bristol, while the highest occurred in Preston and Sunderland. The death-rate from diarrhœa showed a further slight decline from those that prevailed in recent weeks; it was, however, equal to 6·6 in Hull, and 8·0 in Preston; it was nearly three times as high in the twenty-seven provincial towns as in London. The largest proportional fatality of scarlet fever occurred in Nottingham, Derby, and Sunderland; of whooping-cough in Huddersfield and Oldham; of measles in Huddersfield and Sunderland; and of "fever" in Liverpool, Newcastle-on-Tyne, and Sunderland. The 30 deaths from diphtheria in the twenty-eight towns included 23 in London and 2 in Portsmouth. Small-pox caused 3 deaths in London and one each in Leeds, Hull, and Newcastle-upon-Tyne. The number of small-pox patients in the metropolitan asylum hospitals, which had been 114, 101, and 91 on the three preceding Saturdays, further declined to 84 at the end of last week; 10 new cases of small-pox were admitted to these hospitals during last week, against 30, 20, and 9 in the three previous weeks. The deaths referred to diseases of the respiratory organs in London, which had been 202 and 178 in the two preceding weeks, rose again to 192, and were 12 above the corrected weekly average. The causes of 83 or 2·6 per cent. of the deaths in the twenty-eight towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Brighton, Portsmouth, and in eight of the other towns; whereas the largest proportions of uncertified deaths were recorded in Wolverhampton, Oldham, and Sheffield.

HEALTH OF SCOTCH TOWNS.

The annual death-rate in the eight Scotch towns, which had been equal to 21·1 and 20·1 per 1000 in the two preceding weeks, rose again to 20·9 in the week ending the 16th inst., and exceeded by 0·9 the mean rate last week in the twenty-eight large English towns. The deaths referred to the principal zymotic diseases in these Scotch towns were 103 last week, and showed a decline of 18 from the number in the previous week; they included 47 from diarrhœa, 19 from whooping-cough, 12 from diphtheria, 11 from "fever," 10 from scarlet fever, 4 from measles, and not one from small-pox. The death-rate from these principal zymotic diseases averaged 4·4 per 1000, and was 0·5 above the mean rate from the same diseases in the large English towns. The highest death-rate from these diseases occurred in Glasgow, and Aberdeen. The 47 deaths attributed to diarrhœa showed a further decline from recent weekly numbers, but included 19 in Glasgow, and 8 both in Edinburgh and Dundee. The 19 fatal cases of whooping-cough, also showed a decline, 16 being returned in Glasgow and 3 in Aberdeen. The 12 deaths from diphtheria were fewer than in either of the two previous weeks, and included 5 in Glasgow and 2 in Aberdeen. Nine of the 11 deaths from "fever" occurred in Glasgow, while 3 of the 10 fatal cases of scarlet fever were returned in Aberdeen, and 2 both in Glasgow and Paisley. Three of the 4 deaths from measles occurred in Dundee. The deaths referred to acute diseases of the lungs in the eight towns, which had been 80 and 61 in the two previous weeks, were 70 last week, and 9 fewer than those attributed to the same diseases in the corresponding week of last year.

HEALTH OF DUBLIN.

The rate of mortality in Dublin, which had been equal to 20·1, 23·8, 27·3, and 27·6 per 1000 in the four preceding weeks, declined again to 25·8 in the week ending the 16th inst. During the first eleven weeks of the current quarter the death-rate in this city averaged 22·8 per 1000, against 18·5 in London and 17·7 in Edinburgh. The 172 deaths in Dublin last week showed a decline of 12 from the number in the preceding week; they included 17 which were referred to diarrhœa, 3 to "fever," 3 to diphtheria, 2 to scarlet fever, 2 to whooping-cough, 1 to measles, and not

one to small-pox. Thus 28 deaths resulted from these principal zymotic diseases, corresponding with the number in each of the two preceding weeks; they were equal to an annual rate of 4·2 per 1000, while the rate from the same diseases was but 2·8 in London and 2·2 in Edinburgh. The fatal cases of diarrhœa, which had been 19 and 17 in the two previous weeks, were again 17 last week; these were equal to a rate considerably exceeding that which prevailed either in London or Edinburgh. The 3 deaths referred to "fever" showed a decline of 5 from the high number in the previous week. The fatal cases of diphtheria and scarlet fever, however, exceeded the recent weekly numbers. The deaths both of infants and elderly persons were less numerous than those returned in the previous week. The causes of 27, or nearly 17 per cent., of the deaths registered during the week were uncertified.

THE MINUTES OF EVIDENCE BEFORE THE ROYAL COMMISSION ON MEDICAL ACTS.

THE Blue Book of the Royal Commissioners is a volume of 430 pages, and ought to be in the possession of every member of the profession. It is impossible to give even a *précis* of the evidence of the forty-two witnesses examined before the Commissioners. But we are very desirous to make room for some of the evidence on the principal matters involved. We may arrange these under three or four heads. We may assume that the evidence so adduced formed the basis of the recommendations of the Commissioners, and we may hope that it will form the basis of speedy and effective legislation. It is not conceivable, after the evidence given, that things should be allowed to continue as they are. We shall try, then, in three or four successive numbers, to embody the evidence of the principal witnesses on the following points:—

I. *The inequality of the medical and surgical examinations.*

II. *The inefficiency of the Medical Council.*

III. *The mist of the public as to the distinction between qualified and unqualified practitioners.*

IV. *Miscellanea.*

First, then, as to

THE INEQUALITY OF THE MEDICAL AND SURGICAL EXAMINATIONS.

The following are the principal answers on this important subject brought out by the

Examination of Sir JAMES PAGET.

241. (*Chairman.*) Is not that examination [the Arts examination at the Apothecaries' Society] in some cases too easy?—I believe the examination held by the Society of Apothecaries in London is too easy. The number rejected is, as far as I know, too small, and I think the examination is too easy there. The others I do not know well enough, except that of the College of Surgeons. I believe that at the College the examination is at a fair level, but that it should not be diminished in severity. I cannot at present speak at all of the examination at the end of the first year; that has been held too short a time. The examination held at the end of the second year, that which is commonly called the Primary Examination, is, I think, at this time, at the College of Physicians, a very fair and good one. At the College of Surgeons I think the standard is rather too high. At the last examination, out of 140 candidates, I think not less than 69 were rejected; and I know, by communications with some of the junior teachers in the schools, that there were persons rejected who had worked very hard and passed their examinations in the schools very creditably, and were deemed to be good students, quite safe to have gone on with the rest of their work. I believe, therefore, that though the examination is not defective in its method, it is set at too high a standard. I have not heard the same objections made to the examinations of the same kind in the Scotch corporations; and I fully believe, from all I have heard (but I am bound to say that it is only by report), that they are at too low a standard. Let me repeat, I only know it by report. Then for the final examination, I think the standard in England is quite high enough, that no one who can pass that examination is likely to be, in any reasonable sense, ignorant of his profession, so far as he requires it for the mere beginning of his work; because it must always be understood that the examination fits a man for the mere beginning of the work in which he has to learn a vast deal more than he has ever learnt before. Again, however, I have to admit reports which I am bound to believe, that in the Scotch corporations they are admitted too low. The reports are distinct statements that the worst of the students in England go to Scotland; that the worst of the students, especially in provincial schools, do not come to the College of Surgeons of England, but go to the College of Surgeons of Edinburgh, or to the Faculty of Physicians and Surgeons in Glasgow. I have never heard any statement of that kind with regard to Ireland. I have never heard any suggestion, I mean in our schools, that the examinations in Ireland are in the least degree less complete than those of England; rather I should have to say, from all I have heard, that the primary examination, especially that in anatomy is better than in any of the corporations in the three divisions of the kingdom.

Professor TURNER questioned Sir JAMES PAGET. The questions and replies are as follows:—

437. You have given us certain impressions as regards the weaker candidates, at least a certain portion of the weaker candidates, not submitting themselves to examination before the College of Surgeons in England, and going to the College of Surgeons in Edinburgh for examination, and I suppose succeeding in passing there?—Yes.

438. Are those mere general impressions, or have you specific cases in your mind? I do not, of course, ask for any names.—I have not names that I can give; but the matter has been frequently talked of, and I have therefore asked teachers, and they have told me that they know instances. I took care to say, in answer to the Chairman, that it was only a matter of belief on my part, but it is a matter of belief on what I think is sufficient evidence.

439. Have you looked at the proportion of rejected candidates who have appeared before the examiners of those different bodies as furnished to the General Medical Council in the annual return?—Yes; I should say, concerning those, that I have never heard that all the bad ones who go from England to Scotland do pass, but when that sum total is made up of rejections, I should not be surprised to find that it came to be nearly as great as the number of rejections in England, because they get such a much worse set of men.

440. Would you be surprised to hear that it is greater than in England?—No, I am not surprised to hear that. I think they get a worse set of men in Scotland, and therefore have to reject a greater proportion than in England.

441. I have only taken the final examination?—I think the other should especially be taken. The final examination is an examination of the men who have passed the first, after the elimination of all the worst, and the worst do not come again.

442. But that applies, of course, to Scotland as well as to England?—But these men go up also for the primary, as I am told.

443. I have not made any calculation upon anything but the final examination?—I could not go further than to say that I have heard it on evidence which I believe. I cannot give you names, and I cannot give you numbers. If it were to be denied and disproved by numbers, I should be surprised; I cannot say more than that.

444. I think, as the matter has been raised, perhaps it might be as well that these numbers should come into the evidence. I find in the final examination of the Royal College of Surgeons of England 37 per cent. of the candidates were rejected?—Yes.

445. I find at the final examination for what is called the double qualification of the Royal College of Surgeons and Physicians of Edinburgh, 44 per cent. were rejected?—Yes. Then may not that be explained on the very ground that I have stated—viz., that in that final examination the rejected on the primary examination in England still remain, and the bad and idle men have gone to Scotland?

446. That I cannot give you any information upon?—That is what is said.

Examination of Dr. JACOB, *of Dublin.*

In illustration of his averment of "extraordinary inequality" in curricula and examinations and fees, and of the

tendency of this inequality to drive students from Ireland to easier places, Dr. Jacob adduced a table, in which he traced 2584 Irish students to their qualifying Boards. He says (Question 1374) in answer to the Chairman:—

In drawing up this table, I took the Medical Students' Register, which is published annually by the Medical Council, for ten years, and I picked out from it all the Irish students, numbering 2584; I followed those students into the Medical Register of Practitioners, for the purpose of ascertaining where they obtained their licences, and the table gives an analysis of the information they obtained. I call particular observation to the columns headed "Edinburgh College of Surgeons," and "Edinburgh College of Physicians," and to the figures standing against the Queen's Colleges in those columns, from which it will appear that out of 232 surgical diplomas granted by the Edinburgh College to Irish students, 54 were granted to students of the Queen's College, Belfast, 66 to those of the Queen's College, Cork, and 31 to those of the Queen's College, Galway—that is to say, that 151 out of the 232 came from the Queen's Colleges. Now, if you will permit me, I will explain the reason of that. A student attending in a Queen's College may obtain all the lectures necessary for a Queen's University degree or a Scotch double diploma in two years, not more than two courses of lectures being required in any subject. That student, if he were to come to Dublin, would be obliged to put in a third year, to attend a third course of lectures, pay for his maintenance in Dublin, and pay his fees. Consequently, he does not come to Dublin; but when he seeks a diploma outside his own university, he goes direct to the Faculty at Glasgow or to the Colleges of Physicians and Surgeons at Edinburgh for it. Thus it turns out that a very large proportion of the Irish students have within the last fifteen or twenty years taken their qualifications in Glasgow or in Edinburgh, in consequence of the fact that the curricula there are equal to the curricula of the Queen's Colleges, and below the curricula of the Dublin Colleges. Therefore I use these figures to enunciate the fact that this inequality has been productive of an enormous exodus of Irish students to Scotland, and that if that exodus or that competition of curricula is ever to be put a stop to, it can only be put a stop to by, to a certain extent, equalising the curricula, the fees, and the examinations.

Examination of Dr. GLOVER.

1900. (*Lord Camperdown.*) With regard to the examinations by which the qualifications which are given are tested, have you been struck by the inequalities of the examinations of some of the present medical authorities?—I have been struck with the reports of the inequalities. I have had no personal experience of it, and it is very difficult to get personal experience by which to answer that question, but I have been very much struck with the strong impression amongst men who are in a position to be well informed of the existence of such inequality.

With regard to the easy ways of acquiring even the highest qualifications of the Scottish Corporations, Dr. GLOVER said, in answer to Professor TURNER (Question 1979):—

Before the Act of 1858 there were practically no licentiates in the Edinburgh College of Physicians. In 1859, a year of grace, the College made £10,000 by the easy gift, sometimes without examination, of its licence to persons already possessed of a medical qualification. In 1863, the number of applicants for its licence were 160; in 1868, 408. The Royal College of Surgeons, Edinburgh, in 1863 had 132 applicants for its licence; in 1868, 153. This fact has been published lately: A young man went to the College of Surgeons in England, and was plucked. He went to the Edinburgh College of Surgeons, and was also rejected. He went next to the Faculty of Glasgow, and there he got through. He got the licence of that Faculty to practise, and some little time after that he was found in possession of the Fellowship of the Edinburgh College of Surgeons—the highest qualification which it had to give. That has not been contradicted.

Examination of Dr. HALDANE.

2774. (*Bishop of Peterborough.*) If we had a *tabula rasa*, we should not begin by setting up the nineteen medical bodies?—Certainly not.

2775. And I think I may assume further from your evidence that the degrees or diplomas given by these various medical bodies, and therefore presumably the education on which they have given those diplomas or those degrees, vary very considerably in value?—They vary undoubtedly.

Examination of Mr. SAMPSON GAMGEE, F.R.C.S. Eng.

3228. (*Chairman.*) Can you tell us from your own experience instances of persons who have chosen examinations which are notoriously inferior?—I have known many men who have been unsuccessful in the English examinations—e.g., the examination of the Royal College of Surgeons—once, twice, and thrice go across the border and come back with the double qualification from the Edinburgh and the Glasgow Colleges.

3229. When you say "Colleges," do you mean the Corporations or the Universities?—By the Colleges I do not mean the Universities. So far as I know of the Scottish Universities, their position is unimpeachable. But with regard to the Colleges of Physicians and Surgeons of Edinburgh and the Faculty of Physicians and Surgeons in Glasgow, I have known men get through there who had failed in our College of Surgeons repeatedly, and I have no hesitation in saying they were men who were entirely unfit to enter the medical profession. That has happened within the last three or four years. I have addressed my classes several times during the last seven or eight years—that is to say, successive classes in different sessions—and I have assured them that whatever they said to me would be in confidence so far as persons were concerned. I said, "How is it that A.B. went to Edinburgh or Glasgow; can you tell me anything about what is the feeling of the students on the choice of examinations?" They have said, "We know very well that the Scotch Colleges give the easiest examination; if a man is plucked here, he can go there, and," to use a student's expression, "bring his ticket back."

3230. Do you say that with regard to the Colleges of Physicians and Surgeons at Edinburgh?—Yes, I do.

3231. That statement is made upon cases which have come within your own knowledge as a teacher?—Yes, I speak of men that are now upon the Register. I have refreshed my memory by looking to see if they are still alive, and I know the men perfectly well.

3232. Do you think there are many instances of that kind?—I know several, and it is a notorious fact that there are a great many. It has a most demoralising effect. When a young student, beginning with good intentions, gets into some little difficulty with his studies, and cannot go up for the first Anatomical Examination at our College, he is consoled in this way: the College of Surgeons of England will only give him a single qualification, but he can go to Edinburgh and bring back a double one on very much easier terms.

Professor TURNER, examining Mr. GAMGEE, said:—

3373. Then you have also made certain statements as regards the migration of students from England to Scotland in order that they may obtain in Scotland a less difficult examination than they would have to be subjected to in England?—I have done so.

3374. Have you any reason to believe that those examinations to which you refer are inefficient examinations; that is to say, that they do not sufficiently test the competency of the candidate to practise medicine, surgery, and midwifery?—I know that they have let through some altogether incompetent men, who could not get through the English boards.

3375. Do you know that of your own knowledge?—I do.

Examination of Professor SPENCE.

3434. It has been stated to us in evidence by some of the witnesses that it is notorious that some institutions give diplomas on much easier terms than others, and that it is well known both to students and to teachers that many men who would have no chance of passing in some institutions go to others and pass?—That is a strong assertion without much proof, and I would ask for proof, for I do not know of anything of the kind taking place, and I do not believe in it. From what I have seen of the examinations of all the boards with which I have been connected, and from what I know of the others, I do not know of any in the United Kingdom where that is the case. A man cannot practise even on an apothecary's licence alone, which might have been a little easier formerly. I know that when I was a teacher of anatomy, with regard to the English College, there certainly was a tendency on the part of a portion of the students to go there, and if one asked a student why he went to the English College instead of

remaining where he had studied, he would say, "Well, I may practise in England; and another thing is, that when I go to the London College of Surgeons (when it was the London College of Surgeons, not the College of Surgeons of England), I have only to be examined in anatomy, physiology, and surgery, and I can get that up more easily than when I go to the Edinburgh College, where I have so many more subjects." But that is different now; I do not think there is any tendency to that. I am quite sure that no man goes to one place more than another on that account; if he does, he finds it a very gross delusion when he goes to the particular body which he has chosen.

3435. In your opinion, I presume, as far as possible there should be equality in the curricula of studies in all the institutions?—Yes, certainly, I think that is a matter of very great importance.

3436. And that the time necessarily taken in going through the medical course should be the same in all?—They should be regulated as far as possible to be the same.

3437. And as far as possible the expense and the fees should be similar?—That would depend very much upon whether it is a wealthier or a poorer country; but, no matter what the fees are, I think that in the curricula of study and the examination there should be an equality.

3438. If it should be that a conjoint board were established, do not you think that a conjoint board consisting partly of the universities and partly of the medical corporations would be stronger than either by itself?—No. I think that the examinations would deteriorate. At present an examiner connected with a college or a university has the honour and traditions of the college in his hands, he feels himself responsible and he knows that he is responsible to the college that elects him from year to year, and consequently he is more particular in doing his duty. There is a sort of *esprit de corps*, in fact, with regard to examination which, I think, keeps up the examination both in the universities and in the colleges to the high standard which at present obtains. It would be a mere examining board; you would have people examining who have no interest in the business; at first it might be very good, for we are told that new brooms sweep clean, but afterwards the men would gradually lose their interest, and the examination would become perfunctory after a time. You might get first-rate men to examine at first, but you would find that what took place in Prussia would take place here. Formerly in the Staats Examen they were required to have some of the best men that they had in Prussia as examiners, but they found that those men after a time gave it up; they had not time and they got tired of it; they literally gave it up, and the examiner goes now to the universities and to the different schools which give a licence, so that that system broke down there, and the Staats Examen broke down, so far as being a single portal, as it were, to the different universities. I think there are some nineteen or twenty boards at least in Germany now.

3439. Do you approve of the higher honours of the profession being given through examination?—The question is, what is meant by an honour?

3440. For instance, a Fellowship in a college?—Fellowship of a college does not necessarily imply a qualification to practise. At the time I entered my college I entered of course by examination, and that kept me back for fifteen years nearly in my profession from the expense connected with it. I do not think that you have a right to saddle any man with expense on entering the profession in that way, so that he cannot get on unless, as a condition of his entering the profession, he can afford to spend so much more time in study, and so much more money for such a degree. If a man wants a higher degree let it be Doctor or Master in Surgery. The title of Fellow merely implies that he is an associate, for that is the simple meaning of it. It does not imply a higher degree; it simply implies that a man has such an interest in the particular profession that the college think he is worthy of being affiliated to it. I have handed in a statement along with my *précis* which was sent by the College of Surgeons in Edinburgh, which I may just as well refer to. This statement was drawn up in consequence of certain very misleading statements, for I cannot call them anything else, that were made with regard to our Fellowship. I urged the present Council to meet them, and they referred it to me. I went over the history, because I knew the history of it from the commencement. When the charter was granted I was a young Fellow of the College, but still I was there during all the debates, and heard the reasons given in the College, and I recollect the history very well. I considered that the College of Surgeons of Edinburgh, through their monopoly, were keeping back their licentiates, because I felt that unless I could afford to pay £300, which I had to do ultimately, I had no chance of obtaining a Fellowship, and I think that was a very great hardship. In the English College of Surgeons now there is no such direct money charge, but if we can believe those who make the statement, they say that it costs between £300 and £400 for extra medical education for a man to be able to go in for that examination, and I say that you have no right to put such a money barrier in the way at the commencement of a man's professional life. A man who is able to treat Her Majesty's subjects ought to be able to be a Fellow or an associate of a college without any further examination. Of course, I do not stand upon examination. A man should be thoroughly examined before you send him to the country as a practitioner, and then after that let him be affiliated to a college by some other means than examination.

3441. You are aware that the College of Surgeons in England takes a different view from what you do, and that they do not confer their Fellowships without a very strict examination, and that they believe it a higher honour, and therefore that it ought to be to the public evidence of a higher qualification?—But it is not so. It is not so in the present system of the College of Surgeons of Edinburgh, and we have had experience of both systems. We had experience of what it was by examination, and we found that the College was dwindling away—that nobody joined it. Men in practice who had a good reputation would not go there and submit themselves to the examination. Men who had been in practice as hospital surgeons in some of the provinces found that it conferred no privileges on them, except in Edinburgh, when the surgeon wanted to hold a hospital position there. That was a great hardship to those who had not the money qualification in the first instance, and that is what kept me back for years before I could become a surgeon to a hospital.

(To be continued.)

THE GENEVA CONGRESS.

No. II.

M. PASTEUR ON THE ATTENUATION OF VIRUS.

At the second sitting only was the real business of the International Congress of Hygiene begun. The first meeting was devoted to congratulatory addresses, in which it was curious to notice that the least important countries took the most active part. While the representatives of the Great Powers of Europe maintained an attitude of solemn reserve, Poles, Bulgarians, Brazilians, representatives from Algeria and similar countries, indulged in grandiloquent speeches, which might have conveyed the impression to an ignorant public that the spirit of sanitary reform had been imported into Western Europe from the Danubian Principalities and regions south of the equator.

The second meeting of the Congress was densely packed; in the galleries occupied by the general public there was scarcely standing room. The heat of course was intense, and the impartial critic must have discerned that if sanitary reformers are good speakers, they are, so far as the ventilation of the hall where they met is concerned, anything but good practitioners. Dr. H. C. Lombard, of Geneva, the President of the Congress, was in the chair, and when he called M. Pasteur to the platform, the applause assumed the character of an ovation. Discarding all attempts at oratorical effect, M. Pasteur took a seat at a little table, unfolded his manuscript, and read as quietly and simply as if he had been at his own fireside. Now and then he stopped in the lecture to explain some point, or else to abbreviate some passage which he thought too long. Yet if the speech was thus modestly delivered, it was not devoid of that refined eloquence that is the special charm of a cultivated Frenchman. To explain his presence, M. Pasteur commenced in the following words:—"The Directing Committee of this Congress, knowing that I was to spend the vacation in the Jura mountains, within a few hours of your beautiful city, was kind enough to invite me to read a paper on the Attenuation of Virus. I willingly acceded, happy to find a

pretext which would enable me to become for a little time the guest of a people who had been the friends of France in its evil as in its prosperous days. I also cherished the hope of meeting those who have criticised my works during these last few years. If this Congress is a field for union and reconciliation, it is also the arena for courteous discussion. We are all animated by the highest aspiration—a passionate love of truth."

M. Pasteur then at once launched into the subject under discussion, recalling his works published in 1880 on Chicken Cholera, the cultivation of the specific germ, and the creation by this cultivation of a virus that could be used as a vaccine against the disease. This modification in the intensity of the germ poison could be obtained by simply exposing the microbe to the action of oxygen. This fact had also been proved as applicable to the microbe of charbon, by comparing the virulence of cultivated microbes exposed to the action of the air and those which, on the contrary, have been confined in a sealed tube. In the former case they perish entirely in the course of a few months, after passing through various phases of attenuation; while the latter, being protected from the action of oxygen, retain their virulence for several years. M. Pasteur's principal object was to demonstrate that by utilising the action of air we could establish a general method for the attenuation of virus. In the researches which have demonstrated these facts, M. Pasteur was greatly assisted by M. Chamberland, M. Roux, and more particularly by M. Thullier. It was in their name as well as his own that he spoke. M. Pasteur then related the case of a young child bitten by a mad dog, and who died of hydrophobia. Rabbits inoculated with the saliva taken from this child, four hours after death, died in thirty-six hours. This blood contained a special microbe that could be easily cultivated, and in each successive generation killed rabbits thus inoculated, and the same microbe was discovered in their blood. In one experiment it was shown that the appearance of the virulent organism took place nine hours after inoculation, and corresponded with the commencement of the fever. The saliva of dead rabbits will communicate the malady to other rabbits. Adult guinea-pigs can resist this inoculation, but young guinea-pigs are killed in two or three days, and by passing the poison through several young guinea-pigs it so increases in violence that it will ultimately kill adult animals of the same race; but, strange to say, if it is brought back again to rabbits, then it loses its poisonous force. M. Pasteur described this microbe at the Academy of Medicine on Jan. 18th, 1881.

The question arose whether this microbe would always present itself in cases of hydrophobia, and as in February, 1881, another child died from the bite of a mad dog, other inoculations were made with the saliva taken both before and after death. The rabbits died in three days, and the same microbe was discovered in their blood. Prolonged experiments with the saliva of rabies showed that death might result in three ways: (1) by the new microbe; (2) from disorders of a purulent and septic character; (3) from true madness, which always requires a long period of incubation, and commences by paralysis of the limbs twenty-four to seventy-two hours previous to death. The tendency to bite is extremely rare among mad rabbits. Therefore M. Pasteur concludes that the saliva of persons dying of hydrophobia contains, apart from the specific virus of rabies, not yet characterised by a cultivatable microbe, a virus formed by a special cultivatable microbe, and other and various microbes capable of occasioning death by the exaggerated production of pus, by excessive local disorders, and sometimes by the introduction into the blood of ordinary microbes. The new microbe discovered in the saliva of persons suffering from hydrophobia has subsequently been found in the saliva of persons who died from other diseases; it therefore accompanies, but has no special relation with, the virus of rabies. Nevertheless, this is the third virulent microbe which can be attenuated by the action of oxygen, and the history of this third microbe is as yet unpublished. M. Pasteur offered the Congress the first record of these new experiences. He found that the microbe of the saliva was governed by the same laws as those that influenced the virulence of the microbe of the cholera in chickens. M. Thullier had the patience to cultivate eighty generations of microbes found in the saliva of a patient who died of hydrophobia, and the eightieth generation was as virulent as the first. But if the successive cultures are submitted to the action of air, then the result is not similar to that obtained with the microbe of chicken cholera. The microbe from saliva dies very rapidly. Two or three days' exposure to air often suffices to render the microbe sterile. A culture coming from virulent blood will live from six to twelve days, but in each successive batch the duration of virulence is reduced. The eighth generation will not live longer than three or four days; the twenty-fifth, twenty-six hours; and the forty-eighth, twenty hours. These latter cultures, if inoculated in rabbits, will not always kill them, and the rabbit, having survived the mild inoculation, can then take the virulent poison with impunity. Yet the rapidity with which this microbe loses its virulence renders it very difficult to discover the moment when in its increasing vitality it would constitute a safe vaccine. To do this it is necessary to prolong the life of each crop. This great end can now be attained by employing a new vehicle. The microbes generally live best in veal broth; but by mixing two parts of this broth with one part of pure rabbit's blood, M. Pasteur finds that the life of microbes derived from saliva can be prolonged to forty or fifty days. By taking the microbes during the last ten days cultures of graduated virulence can be made, and thus a vaccine of various degrees of strength obtained. It is to the action of oxygen that we must again attribute the modified strength of these cultures. To the microbes mentioned — the microbe of chicken cholera, the microbe of charbon, the microbe of saliva, especially the saliva of rabies — M. Pasteur concluded by adding a fourth microbe that was discovered in the foam taken from the nostrils of the horses that died during the typhoid epidemic at Paris in 1881. By inoculation with this germ rabbits died of true typhoid. With infinite pains M. Pasteur succeeded, and still by the use of oxygen, in so cultivating and reducing the virus of the typhoid microbe, that he was at last able to vaccinate rabbits without killing them; but, on the contrary, when he subsequently inoculated them with the virulent poison, they did not feel its effects. Thus M. Pasteur was able to declare, in conclusion, that we now undoubtedly possess a general method of attenuation. Its application need only be modified according to the exigencies of the physiological characteristics of the different microbes. The general principles have been found, and it is impossible to doubt that the future of these researches is rich with the promise of great results.

M. Pasteur then proceeded to refute some personal attacks made against him by Professor R. Koch and his pupils. This gave rise to a curious misunderstanding that, but for the dignified reserve of Dr. Koch himself, might have led to unpleasant consequences. The Germans, who were present in great numbers, misunderstood M. Pasteur's allusion to the *recueil allemand* as a taunt respecting the *orgueil allemand*. After such a misconception, Dr. Koch was perhaps justified in refusing to accept M. Pasteur's challenge, though he at once mounted the platform after the applause had subsided.

Dr. Koch, speaking in German, said he was disappointed with M. Pasteur's paper; the facts lacked novelty, and he could not see that they were especially connected with hygiene. In any case, he would answer all the points raised through the medium of the scientific press. Dr. Koch was especially anxious to avoid a discussion at present, for, as M. Pasteur could not speak German, and he could not express himself clearly in French, there was but little chance of coming to an understanding.

M. Pasteur thereupon protested that Dr. Koch could not have understood his paper, or he must have acknowledged the importance and fecundity of the facts disclosed.

The President here adroitly interposed, suggesting that a diversity of opinion between men so prominent in science could but prove of benefit to mankind by stimulating the researches of each party.

Dr. Sormani, of Pavia, then related how in Italy it had been found that the vaccine for charbon was only effective when it produced sufficient disturbance to raise the temperature of the animal vaccinated to 40° C.

Dr. Marestresi, of Genoa, doubted whether the microbe was the cause of illness. The microbe of typhoid, for instance, was not found at the commencement of the illness. Just as the sea was not made by the fish but for the fish, so did the microbe live in diseased blood because it suited its mode of life, and not because it had created the disease.

M. Pasteur, in answer to the suggestion that his researches were not connected with hygiene, urged that as their object

was the prevention of disease, they, on the contrary, harmonised with the highest aims of sanitary reform. Already some practical results have been attained, for there have been no less than 400,000 sheep vaccinated and 40,000 bullocks, and the deaths from charbon have been reduced to 1 in 300 among the sheep and 1 in 2000 among the bullocks. There have been, it was true, unfavourable results in Italy, but this was due to mismanagement; the vaccine had been kept too long in a hot climate, and was charged, not merely with the microbe of charbon, but with many septic germs.

At the conclusion of a most enthusiastic meeting M. Pasteur was warmly felicitated on all sides.

THE SERVICES.

ARMY MEDICAL DEPARTMENT.—Brigade Surgeon Adam Graham Young to be Deputy Surgeon-General, vice J. P. Cunningham, M.D., granted retired pay; Surgeon-Major William Silver Oliver, M.D., to be Brigade Surgeon, vice A. G. Young.

ARTILLERY VOLUNTEERS.—1st Hampshire: Honorary Assistant-Surgeon David Shorter Skinner resigns his commission.

RIFLE VOLUNTEERS.—1st Roxburgh and Selkirk (the Border): Surgeon Alexander Dewar, M.D., resigns his commission.

ADMIRALTY.—In accordance with the provisions of Her Majesty's Order in Council of April 1st, 1881, Fleet Surgeon George Moore, M.D., has been placed on the Retired List from the 13th inst., with permission to assume the rank and title of Retired Deputy Inspector-General of Hospitals and Fleets.

The following Staff Surgeons have been promoted to the rank of Fleet Surgeon in Her Majesty's Fleet:—George Curtis, George Bewsher Beale, M.D., John Stephen Dobbyn, M.D., and George Robertson, M.D.

The following appointments have been made:—Fleet Surgeon Edward H. Evans, to the *Durham*, vice Moore; Surgeon Gerard J. Irvine, to the *Diamond*, vice Stace, invalided; Staff Surgeon Edward W. Doyle, to the *Heroine*; Surgeon Joseph Crowley, to the *Linnet*; Surgeon Henry G. Jacob, to the *Duke of Wellington*, vice Doyle; Fleet Surgeon William Roche, to the *Impregnable*, vice Hadlow; Staff Surgeon Edward T. Lloyd, to the *Brilliant*, for temporary service; Staff Surgeon Anthony Gorham, M.D., to the *Osprey*.

WILLS AND BEQUESTS.

THE Irish Probate of the will of Surgeon-Major Espine Ward, Army Medical Department, who died at Barbadoes, West Indies, granted to his brother, Mr. Montgomery Albert Ward, M.B., was sealed in London on the 16th ult., the aggregate value of the personal estate in England and Ireland exceeding £1200. The testator's wife, who under the will took a life interest in his property, having died, all his estate becomes at once divisible between his children.

The will of Joseph Peplow, M.D., formerly of 111, Great Russell-street, Bloomsbury, afterwards of Eastbourne, but late of 7, Vant-terrace, Lower Tooting, who died on July 27th last, was proved on the 18th ult. by Mr. Edward Peplow, the nephew, and Mr. John Eyles, the executors, the value of the personal estate being over £4900. The testator, after making bequests in favour of his wife, Mrs. Phœbe Peplow, and of his adopted children, Victoria Alma Williamson and Charles Frederick Joseph Williamson, leaves the residue of his property upon trust for his sister, Mrs. Elizabeth Eyles, for life, and at her death for six of his nieces.

The will of Alfred Heale, retired surgeon, formerly of Luton, Beds, but late of Jury-street, Warwick, who died on June 15th last, was proved on the 28th ult. by Mrs. France Heale, the widow, and Mr. Charles Crichton Stuart Benning, the executors the value of the personal estate amounting to over £13,000. The testator gives to his wife £2000 and all his household furniture, plate, and effects; to his nephew, Alfred Lawson Heale, £800; and a legacy to his brother. All his real estate and the residue of the personalty is to be held upon trust to pay the income to his wife for life; at her death further legacies become payable, including £2000 to his said nephew; and the ultimate residue is to be divided between his sister, Miss Agnes Heale, and the children of his late brother, Arthur Wellington Heale.

The will of Henry Davis Male, M.D., of 2, North-side, Victoria-park-square, who died on July 28th last in Somersetshire, was proved on the 7th inst. by Mrs. Juliana Male, the widow and sole executrix, to whom he devises and bequeaths all his real and personal estate for her own use and benefit.

The following legacies have recently been left to hospitals and other medical charities:—Mr. Thomas Higginbotham, of Alderley Edge, Cheshire, £300 each to the Manchester Royal Infirmary and the Macclesfield Infirmary, and £100 to the Children's Hospital at Pendlebury.—Mr. John Eyston, of Salford Hall, Warwickshire, and Welford, Northamptonshire, £100 to the General Infirmary, Northampton.—Mr. John Robert Daniel Tyssen, of 9, Lower Rock-gardens, Brighton, £200 to his niece, Caroline Harvey Carter, for the benefit of the Cottage Hospital at Northwold.—Mr. John Hyam, of 60, Houndsditch, and 53, Tavistock-square, £100 to the Jewish Hospital.

SCOTTISH NOTES.

(From our own Correspondent.)

ON Sept. 4th a prediction appeared in the *Scotsman* that after that date we would have a period of dry but rather cold weather, suitable for harvest operations. It was written when farmers' hopes were not high, as the week had been wet and changeable. The opinion was based on spectroscopic observation, showing that a change in the percentage of rainfall had taken place, and that this was then much less than it had been. The Meteorological Office has been peculiarly in error in its predictions, showing that some essential factor in the calculation had been omitted, and this, together with the period of the year, gave additional interest to the observation. For a complete week harvest work was entirely uninterrupted; on Sept. 10th we had a considerable rainfall, and after this it was four days before rain again fell, so that the first public weather prediction which, so far as I know, we have had in Scotland by this new method has proved eminently correct.

A serious accident occurred to Mr. W. A. Orr, M.B., Johnstone, last week. It would appear that while on holiday he had been putting to the test the leaping capabilities of a horse recently purchased, that the animal shied and fell, rolling over his rider, and causing a double fracture of the clavicle as well as some rather serious bruises. He is progressing favourably.

A complaint having been made to the Board of Supervision regarding the manner in which Dr. Marshall, of Dumfries, has performed his duties as parish doctor, an inspector visited the town a few days ago for the purpose of taking evidence in the case. The charge of neglect is made by another practitioner in the town, Dr. John Cunningham, who appears, in correspondence with the Board of Supervision, to have asserted that the poor of the burgh have had the greatest difficulty in securing the services of Dr. Marshall; and it is further charged against that gentleman that he went to Ireland without providing a substitute to act in his absence, Dr. Cunningham's services being put in requisition. It is of the utmost importance that the poor should be suitably attended to, and, happily, complaints of this nature are rare, while it is still more seldom that a fellow practitioner is the informer. Dr. Marshall will doubtless have a thoroughly impartial inquiry; and if it is true, as I hear, that this gentleman enjoys but indifferent health, he will receive the sympathy of his neighbours, who seem to think that Dr. Cunningham's interference might have ended when his work was done.

Notwithstanding remonstrances from various quarters, and the influence of a large minority in their own body, the Dundee Police Commission have separated the offices of police surgeon and medical officer of health, giving to the latter but a trifling salary, and losing the opportunity o placing health matters on a satisfactory footing, as recommended in THE LANCET. The present muddled condition of the public accounts has evidently a good deal to do with the result, and I hope that as the financial state improves so will the salary of the gentleman now appointed. It is noticeable

that, though the salary offered was so shabby, two of the best men in the town were candidates: a fact which is rather unpleasantly suggestive to other cheese-paring communities.

I hope that the handsome gift of £2000 now received by the Aberdeen University from Mrs. Marr, for the founding of medical bursaries, may soon be imitated by other friends of the University and of science. In the Arts and Divinity classes almost every student holds a bursary, but such are so scarce among medical students that this may almost be considered a new departure.

The epidemic of typhus fever in Aberdeen which recently threatened to assume serious proportions has now been stamped out. Dr. Simpson complains of the prevalence of overcrowding and deficient ventilation, shows their influence in the spread of typhus, and suggests the clearing out of a number of the courts in the poorer districts of the city as the only means of accomplishing a more sanitary condition.

PARIS.

(From our Paris Correspondent.)

DR. DE PIETRA SANTA, after having discoursed at the last meeting of the British Medical Association on the etiology of typhoid fever, showed the relative value and importance of the two principal theories in vogue as to the nature and cause of this virulent form of fever. On his return to Paris he followed up his paper at the Academy of Sciences and the Academy of Medicine, which will, I presume, go the round of the medical societies here. He placed in juxtaposition what he calls the English and the French theories: the former maintaining that typhoid fever is produced by direct contagion, by the stools of the patient and the elaboration of morbigenetic matter which is generated in the different pipes and drains of dwelling-houses, or in the collectors of sewage water. In other words, the English theory may be said to consist—first, in impure and contaminated drinking waters; secondly, in the exhalations from sewers, or from the miasmata emanating from privies and cesspools. The French theory admits that typhoid fever may be developed spontaneously by infection, or specifically by contagion; but the great majority of French authors do not accept the unity of the typhoigenetic poison. Thus it may be seen that Dr. de Pietra Santa has not thrown any new light on the subject; he has not disproved the English theory, and I do not find that he has enunciated anything novel concerning the French theory, which denies that the cause of typhoid fever consists of a germ, or of any single preformed agent entitling it to be considered as an exclusive or specific cause of this virulent type of fever.

Up till now the bromide of potassium has been almost the only remedy employed in the treatment of epilepsy, but Professor Ball has found from experience at his Clinic at the St. Anne Asylum that the combination of the bromides of ammonium and sodium possesses an incontestable superiority over the potassium salt, the two former being much better borne by the stomach. Another advantage of this double salt is that it does not leave, after its employment for a time, either headache, drowsiness, languor, loss of memory, or any weakness of the intellectual faculties. Moreover, although the double salt also produces an acneid or a furuncular eruption, yet neither the one nor the other form of eruption occurs with such frequency or intensity as with the bromide of potassium. The double salt, however, has one great drawback to which Professor Ball has directed attention, and that is its tendency to produce hæmorrhage, or to aggravate this when it exists already. He therefore considers it an unsafe remedy in tubercular or phthisical subjects, and in such cases he gives the preference to the bromide of potassium.

Your readers will recollect the history of the "homme à la fourchette," which created a great sensation a few years ago. We have now a patient in the Lariboisière Hospital who has been operated on by Dr. Felizet for the removal of a spoon from the stomach. The patient was a waiter at a café, who in a frolic accidentally swallowed a spoon. It was a spoon generally used for mixing toddy or diluted coffee, the bowl of which is about the size of a teaspoon, with a handle adapted for a long tumbler. Dr. Felizet at first was in hopes that he would have been able to remove the spoon through the natural passages; but finding this impossible from its position, which was across the stomach, he was obliged to resort to gastrostomy. The patient, according to the latest report, is doing as well as can be expected.

The death of the oldest physician in France, Dr. Dorin, is reported, which took place at Chalons-sur-Marne. The venerable doctor had just attained his ninety-fourth year.

While in the act of holding his consultations, Dr. Hillairet died suddenly on the 15th inst. from an attack of apoplexy. The deceased physician was scarcely sixty, and appeared in robust health. He was for a long time physician to the Saint Louis hospital, and a member of the Academy of Medicine since 1875 in the section of Public Hygiene.

Obituary.

SIR JAMES ALDERSON, M.D.OXON., D.C.L., F.R.S.

SIR JAMES ALDERSON, who has just died at the advanced age of eighty-seven, was almost unknown to the present generation of medical men, but will be well remembered by the senior Fellows of the College of Physicians. He was a man of considerable ability, took a high position in the list of Wranglers at Cambridge, and was made a Fellow of Pembroke and of the Royal Society. He took his degree in medicine at Oxford in 1829, and became a Fellow of the College of Physicians in 1830. For many years he practised in Hull, where he held a very high position. He is said to have had a large and lucrative practice there, and his reputation still survives in the East Riding of Yorkshire and in Lincolnshire. He left Hull, however, for London, and at once began to take an active part in the government of the College of Physicians; the College, indeed, appears to have been his chief interest, and until the time when he ceased to be president, in 1870, after three years' tenure of that office, there were few figures more familiar than his in the College building. He was treasurer from 1854 to 1867, and devoted much time to the duties of the office, which he discharged with zeal and skill. It was he who discovered the original charter of the College, given by Henry VIII., which is now among its treasures.

When St. Mary's Hospital was founded in 1851 he was selected for the highest place on the medical staff, and continued to be senior physician till he became president of the College in 1867.

In person he was below the middle height, and slight in build; and he was remarkably active, and even agile, when he had long passed the age of sixty. His face gave one the impression of intellect and power; his features were regular and well cut; his expression was, perhaps, a little haughty.

In practice he did not rely much on physical examination, but his diagnosis was remarkably good, and his prognosis was usually verified by the result. His bedside teaching consisted of a few shrewd remarks which often conveyed most valuable lessons. At the College of Physicians he distrusted the reforms which led to its existing constitution; but he had its interests thoroughly at heart, and his labours on its behalf were recognised by his election as president on the retirement of Sir Thomas Watson. He held this office for three years, but was not re-elected for a fourth term. From this time he was rarely seen at the College, and it is doubtful whether he ever attended another meeting of Comitia. It was on his retirement from the presidency of the College that he received the honour of knighthood.

Sir James Alderson has left no writings which are likely to be of permanent value, but though he may have made no durable mark in his generation by this or other means, he was a useful member of the profession and a man of a high sense of honour, and his memory is held in great regard by many of his colleagues in the College of Physicians and of the former students of St. Mary's Hospital.

ROBERT RAYNER, M.R.C.S., L.S.A.

THE inhabitants of Birstal and of the immediate vicinity have sustained a serious loss by the death of Mr. R. Rayner. The deceased, who was the eldest son of the late Mr. Thomas Ingham Rayner, was born in 1825.

Mr. Rayner became a Licentiate of the Apothecaries' Society in 1848, and a Member of the College of Surgeons in 1850. For many years past Mr. Rayner, first alone, and afterwards in connexion with his son-in-law and surviving partner, Dr. Forsyth, had a large and varied practice, and enjoyed the respect and esteem not only of his patients but of his professional brethren. Mr. Rayner held the post of certifying surgeon under the Factories Act from 1854 to 1879, when he resigned the appointment in consequence of declining health. He was medical officer for the Birstal District of the Dewsbury Union from 1850 to the date of his death; medical officer of health in the Local Board Districts of Birstal and Birkenshaw, and for some years also held that position in the adjoining township of Drighlington. The energy and abilities of the deceased were not, however, confined to the duties of his profession. Mr. Rayner was elected to the office of churchwarden on nine different occasions, trustee of the Day and Sunday Schools, a vice-president of the Birstal Church Institute, and was also actively engaged in all measures affecting the parish church where lay assistance was necessary. In connexion with the volunteer movement in Birstal, Mr. Rayner held the following offices—namely, surgeon to the 30th West Yorkshire Rifle Volunteers, lieutenant, captain, and then major of the corps. On being raised to the rank of major he was presented with a testimonial by his brother officers and the other members of his corps, and he continued to hold that position for some years. In October, 1875, the deceased met with a serious accident by being thrown from his carriage—an event which induced a condition of ill-health that terminated fatally on the 8th inst. That Mr. Rayner was universally esteemed in the district was amply shown by the large attendance of spectators of all ranks and positions in life at his funeral, which took place at the parish church on the 13th inst.

THEODORE E. D. BYRNE, J.P., L.R.C.P.ED., M.R.C.S.

MR. BYRNE, of Elsieshiels, Dumfriesshire and Drumness, Kircudbrightshire, died at Saltcombe, South Devon, on September 9th, at the comparatively early age of fifty-three years. His health had for some years been far from robust, but the lung mischief which proved fatal only lasted three days. Though of an old Scottish family, the deceased was born in Dublin, where he resided for several years, afterwards spending a considerable time in foreign travel. Having studied medicine at Newcastle and obtained his licence, he served throughout the Crimean war, obtaining a medal in recognition of his services. His next few years were passed in the merchant and emigrant services, after which he settled in practice at Newcastle, till, on the death of his father in 1876, he succeeded to the family estates, when he settled at Elsieshiels. Retirement and leisure being uncongenial to such an active man as Mr. Byrne, he devoted himself to the consideration of local matters, to which he imparted a lively interest. He contested the Dumfries burghs in 1880 as an independent Conservative candidate, but though his meetings were much enjoyed by those who loved quick repartee and versatility, his candidature was not considered serious, and at the poll he could only command about fifty votes. Locally he had little fellowship professionally, but from the various forms of activity manifested by him, and his trenchant criticism of men and manners, his place will be difficult to fill.

Medical News.

APOTHECARIES' HALL.—The following gentlemen passed the examination in the Science and Practice of Medicine, and received certificates to practise, on Sept. 14th:—

Blaikie, William, Oswestry.
Maddle, Edward John, Queen's-road, Dalston.
Parry-Jones, William Richard, Rhos, Ruabon.
Pryce, Thomas Davies, Newtown, Montgomeryshire.
Willett, George Gilman Drake, Bristol.

AT a Cripples' Home in London (says the "Daily Chronicle") it was ascertained by a lady some years since that most of the inmates whose deformity was not congenital owed their misfortunes to the overturning of perambulators, or to falls out of them.

MRS. TOWNEND, of Puckrup Hall, has given £1000 to the Rural Hospital and £250 to the Dispensary of Tewkesbury.

A SUCCESSFUL trades demonstration, in aid of the funds of the Halifax Infirmary, took place at Elland on Saturday last.

NEGLECT OF VACCINATION.—The number of unvaccinated children in Cleckheaton, Yorkshire, has induced the guardians of the district to make special efforts to obtain compliance with the law on the part of defaulters, to whom more than a hundred notices have been issued.

MAJOR TULLOCH, on behalf of the Local Government Board, has been inquiring into the condition of the water-supply of Hawarden, with the result of showing a great need of improvement in that particular. In times of drought the inhabitants of the district appear to have been dependent on the neighbouring ditches for their supply of water for drinking purposes.

THE sum of 400,000 dollars has been bequeathed by the late Mr. William Euston, a native of Canterbury, but who realised an enormous fortune in the United States, for the purpose of founding a hospital for aged and infirm persons in Charleston, South Carolina. The testator desired that the building should be of a character similar to one existing in his native city.

THE death-rate in New York appears to have been exceptionally high last year. According to Consul-General Archibald's report the rate of mortality rose from below 26·50 per 1000 in 1880 to above 30 per 1000 in 1881. Half the number of deaths from zymotic diseases, amounting altogether to 13,496, were attributed to diphtheria, scarlatina, and diarrhœa.

ON the 14th inst. a new children's ward at the West Kent General Hospital, at Maidstone, was declared duly open. The ward has been erected to the memory of a Maidstone working man, Jonathan Saunders, now deceased, who, during a busy lifetime, spent his leisure hours in advocating the cause of this and other hospitals. A working men's subscription to the fund for erecting the ward realised more than £350.

THE NORTHERN SANITARY ASSOCIATION.—This Association has now got into working order. At a recent meeting of the executive committee, Mr. Fleeming Jenkin, M. Inst. C.E., professor of civil engineering in the University of Edinburgh, was appointed consulting engineer, Mr. Coard S. Pain, engineering surveyor of Liverpool, acts as resident engineer; and the secretaryship and treasurership are placed in the hands of Mr. J. S. Harmoc Banner.

ST. JOHN AMBULANCE ASSOCIATION.—A public meeting was held last week in the Shetland Islands to inaugurate the formation of ambulance classes. The Hon. John Dundas, Lord Lieutenant, was appointed president, and an address was delivered by Mr. Samuel Osborn, F.R.C.S., of St. Thomas's Hospital, who attended as a deputation from the St. John Ambulance Association. Fifty-two of the fishermen, naval reserve, &c., at once put down their names for instruction.

PRESENTATIONS.—On Friday, the 15th inst., J. Dysart McCaw, Esq., F.R.C.S. Ed., of Portglenone, Belfast, was presented by his neighbours and patients with an illuminated address, a horse, Stanhope gig, harness, saddle, and bridle, as a mark of their confidence in him as a medical practitioner, and their esteem and regard for him as a personal friend.—Mr. Harper, L.R.C.P.L., M.R.C.S., J.P., mayor of Barnstaple, has received during his term of office two testimonials. On June 24th last he was presented by his many friends and patients with a silver dinner service of the value of £120; and on Wednesday, September 13th the town council presented him with a handsome silver salver of the value of £50, in commemoration of the birth of a daughter during his mayoralty. This is not the first presentation of the kind he has received, for when he was mayor in 1874–75 the traditional silver cradle was presented to him to commemorate the birth of a son.

THE ROYAL HOSPITAL FOR CHILDREN AND WOMEN.—H.R.H. the Princess of Wales, with her three daughters, the Princesses Louise, Victoria, and Maud, accompanied by the Queen of Greece, and attended by Miss Knollys and Mdlle. Colocotroni, paid a strictly private visit to this hospital on August 15th. Each ward was closely inspected, and every patient's case fully gone into and described by the resident medical officer, Mr. J. Frederick Briscoe. Besides inspecting the wards and roof of the building, their Royal Highnesses descended to the out-patient department, and some of the Royal party examined the kitchen. This is the second occasion this year on which the Princess has paid a visit to this hospital. Her Royal Highness has expressed much satisfaction with both visits. The last one was on June 25th, and the Royal lady was joined by her three daughters, the Princesses Louise, Victoria, and Maud, who distributed fruit and flowers. The Princess of Wales seems to take deep interest in all medical matters, and is well informed thereon. The Royal party remained one hour and a quarter.

WESTERN INFIRMARY, GLASGOW.—The information given below concerning this institution was inadvertently omitted from our issue of the 9th inst. Number of beds 380. Besides the ordinary medical and surgical wards, there are special wards for skin diseases and diseases of women. There are four medical assistants and four surgical assistants, who hold office for six months. No fee is charged for these appointments. Non-resident clinical clerks, dressers, &c., are appointed from among the students. Visiting Physicians: Drs. W. T. Gairdner, T. M'Call Anderson, James Finlayson, and Gavin P. Tennent. Visiting Surgeons: Drs. G. H. B. Macleod, George Buchanan, Alexander Patterson, and H. C. Cameron. Physician for Diseases of Women and Consulting Physician-Accoucheur: Dr. William Leishman. Out-door Physicians-Accoucheur: Drs. Robert Kirk, W. L. Reid, and Murdoch Cameron. Dispensary Physicians: Drs. Jos. Coats, D. C. M'Vail, and Samson Gemmell. Extra Dispensary Physician: Dr. William G. Dun. Dispensary Surgeons: Drs. James G. Lyon, D. Neilson Knox, and James Christie. Extra Dispensary Surgeon: Dr. J. C. Renton. Dispensary Surgeon for Diseases of the Ear: Dr. Thomas Barr. Dental Surgeon: Mr. James Rankin, Brownlie. Pathologist: Dr. Joseph Coats. Pathological Chemist: J. L. Silver, M.B. Superintendent: Dr. John Alexander. Secretary: Henry Johnston.—Fees: First year, £10 10*s.*; second year, £10 10*s.* Hospital attendance and clinical instruction for six months, £7 7*s*; three months, £4 4*s*. Any student who holds a perpetual ticket for another hospital where the fee is not less than the above may join this hospital for the practice only at the following rates: One year, £3 3*s.*; six months, £2 2*s*. The fees for clinical instruction in such cases, which are £3 3*s*. for a six months' course, are paid separately.

Medical Appointments.

Intimations for this column must be sent DIRECT *to the Office of* THE LANCET *before 9 o'clock on Thursday Morning at the latest.*

BAINES, A. H., L.R.C.P.Lond., M.R.C.S., has been appointed an Honorary Medical Officer to the Southport Infirmary, vice C. H. Smith, L.K.Q.C.P.I., resigned.

BLORE, ISAAC, M.R.C.S., has been appointed Resident Medical Officer to the Netherfield Hospital for Infectious Diseases, Liverpool, vice Hope, resigned.

BRANTHWAITE, HARRISON, F.R.C.S.Ed., L.S.A.Lond., has been appointed Medical Officer of Health for the Willesden Urban Sanitary District, vice Thomas, resigned.

CHITTENDEN, T. HILLIER, M.R.C.S., has been appointed House-Surgeon to St. Mark's Hospital, City-road, vice Mr. Charles J. Ogle, whose term of office has expired.

CREW, WILLIAM THOMAS, F.R.C.S.Eng., L.R.C.P.Lond., L.S.A.Lond., has been appointed Assistant Medical Officer to the Brownlow-hill Workhouse, Liverpool Parish.

DENHAM, THOMAS REID, M.D., M.Ch.Q.U.I., has been appointed Medical Officer for the Ireby District of the Wigton Union.

DOBSON, JOSEPH, M.R.C.S., L.S.A.Lond., has been appointed Medical Officer and Public Vaccinator for the Headingley-cum-Burley District of the Leeds Union, vice C. Jack, M.D., resigned.

DUMAT, H. ALYMER, M.B., C.M.Ed., has been appointed House-Surgeon to the Weston-super-Mare Hospital, vice Ozanne, resigned.

EVANS, THOMAS GEORGE CANN, M.R.C.S., has been appointed Medical Officer to the East Budleigh District, St. Thomas's Union.

EVANS, WILLIAM, L.R.C.P.Ed., M.R.C.S., has been appointed Medical Officer of Health for the Anglesey and Holyhead Rural, and Beaumaris and Holyhead Urban, Sanitary Districts.

FARNELL, H. DAWSON, M.R.C.S., L.S.A.Lond., has been appointed Medical Officer to the Workhouse of the Eastbourne Union, vice Colgate, resigned.

LOW, ALEX. BRUCE, M.B., M.Ch.Ed., has been appointed Medical Officer for the Workhouse, Sunderland Union, vice Crossby, deceased.

MCCLURE, HENRY, M.D., M.Ch.Q.U.I., has been appointed Medical Officer for the Queen Camel District of the Wincanton Union.

RAND, R. FRANK, M.B., C.M.Ed., has been appointed House-Surgeon to the Oldham Infirmary, vice Dr. Harkness, resigned.

RICHARDSON, WILLIAM, L.R.C.P.Ed., L.R.C.S.Ed., has been appointed Medical Officer to the Workhouse, Reading Union.

SCOUGAL, EDW. FOWLER, M.B., C.M., L.R.C.S.Ed., has been appointed Medical Officer of Health for the combined Austonley, Cartworth, Fulstone, Hepworth, Henley, Holme, Netherthong, Scholes, Upperthong, and Wooldale Urban Sanitary Districts, vice Winpenny, whose appointment has expired.

WOODCOCK, R. FRASER, L.R.C.P.L., M.R.C.S., has been appointed Surgeon to the Police of the Borough of Wigan, vice Unwin, resigned.

Births, Marriages, and Deaths.

BIRTHS.

ANDERSON.—On the 26th July last, at Mhow, Central India, the wife of Surgeon-Major A. Anderson, Army Medical Department, of a daughter.

SAUL.—On the 13th inst., at the house of her brother-in-law, Major E. W. Stokes, Lancaster, the wife of W. Wingate Saul, M.D., of a daughter.

THURSTAN.—On the 13th inst., at Tunbridge Wells, the wife of E. Paget Thurstan, M.D., B.A.Cantab., of a son.

TURTON.—On the 14th inst., at Ashfield-terrace, Heckmondwike, Yorks, the wife of James Turton, M.R.C.S.E., of a daughter.

[ERRATUM.—We are asked to state that the birth announcement under the heading "BARR," published last week, is without foundation.]

MARRIAGES.

BARTON—SCOTT.—On the 16th inst., at St. Peter's, Bayswater, James E. Barton, M.R.C.S., of Brookwood, Surrey, to Ida, widow of the late T. C. Scott, Esq., and daughter of Robert Clark, Esq., of Chepstow Villas, Bayswater.

BUCHANAN—BINGHAM.—On the 14th inst., at St. Luke's, Westbourne-park, Arthur Buchanan, M.D.Lond., of High-street, Chatham, to Constance Eliza Maud, second daughter of the late John Bingham, Esq.

EDWARDS—BARNETT.—On the 24th ult., at the Priory Church, Leominster, Octavius Edwards, L.R.C.P.Lond., M.R.C.S., of South-street, Leominster, to Laura, eldest daughter of Samuel Barnett, J.P., Surgeon, of The Brook House, Leominster.

MORRIS—SHIELL.—On the 14th inst., at the Parish Church, Chester-le-Street, co. Durham, Walter Cameron Morris, M.B., of Chester-le-Street, to Florence Maud, second daughter of the late W. R. Shiell, M.R.C.S., of Chester-le-street.

ROBERTS-THOMSON—HULL.—On the 14th inst., at the Parish Church, Hazelwood, John Roberts-Thomson, M.D., F.R.C.P., of Dunedin, Bournemouth, to Mary Frances Rowe (Rona) Hull, second daughter of the late William Winstanley Hull, Esq., of The Knowle, Hazelwood, Derbyshire.

THEOBALDS—WOOSNAM.—On the 6th inst., at Christ Church, Weston-super-Mare, Surgeon-General J. R. Theobalds (Retired List), Madras Army, to Esther (Etty), second daughter of the late Major-General J. B. Woosnam, of the Bombay Horse Artillery.

DEATHS.

ALDERSON.—On the 13th inst., at his residence, Berkeley-square, Sir James Alderson, M.A., M.D., F.R.S., Physician Extraordinary to the Queen, and formerly President of the Royal College of Physicians, aged 87.

CAREY.—On the 25th May, at Wellington, New Zealand, Langer Carey, M.D., late Surgeon-Major, Royal Artillery and 101st Fusiliers, second son of the late Dr. Langer Carey, of Churchfield, Newport, co. Tipperary.

HARRIS.—On the 16th inst., at The Avenue, Blackheath, Surgeon Major Worsley Poulett Harris, M.D., aged 51.

LEWIS.—On the 8th inst., at Whitby, Yorkshire, Waller Augustus Lewis, M.D., Chief Medical Officer of Her Majesty's Post Office, Gordon-square, London.

N.B.—*A fee of 5*s*. is charged for the insertion of Notices of Births, Marriages, and Deaths.*

Notes, Short Comments, and Answers to Correspondents.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this Office.

Letters, whether intended for publication or private information, must be authenticated by the names and addresses of their writers, not necessarily for publication.

Lectures, original articles, and reports should be written on one side only of the paper.

We cannot prescribe, or recommend practitioners.

Local papers containing reports or news-paragraphs should be marked.

All communications relating to the editorial business of the journal must be addressed "To the Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET *to be addressed "To the Publisher."*

MEDICAL OPPOSITION TO IMPROVED REMUNERATION TO MEDICAL MEN.

A CORRESPONDENT directs our attention to a long letter in the *Croydon Guardian*, in which Dr. J. H. Shorthouse argues at great length against the request of Dr. Barnes for an increase of salary, as Medical Officer of the Croydon Union, on the ground that he had held the appointment for nine years at the same salary, but with a great increase in the population and the work. This seems a most reasonable ground on which to base such a request. Dr. Shorthouse remarks Dr. Barnes says nothing of the amount of extra fees which he receives in addition to his salary. But he in nowise shows that this is any reason for not paying him an increase of salary for increased ordinary work. Moreover, Dr. Shorthouse seems to imply that Dr. Barnes' extras are increased by an unnecessarily frequent use of instruments. If Dr. Shorthouse really has such an opinion of Dr. Barnes, he ought to make it the subject of a direct charge at the Board. He ought to go further, and ask for the dismissal of a medical officer whom he thinks capable of such conduct. There is nothing more certain than that professional opinion is in favour of a more frequent use of instruments for shortening labour, and that there are the gravest reasons for not leaving lingering labours to take their own course. But it is greatly to be regretted that a medical guardian should raise such questions in newspapers to the prejudice of a professional brother. Most medical guardians, especially when the vote went against the application of a medical servant, even if they approved it, would have been thankful for a reasonable excuse for taking no part in the discussion.

Mr. W. Davis.—We are unable to recommend the appliance.

H. W. Larkin, M.D.—There are homœopathists and homœopathists.

Mr. Underhill.—The error is corrected in a note published in another column.

GONORRHŒA.

To the Editor of THE LANCET.

SIR,—I trust you will find space for the following remarks in your valuable journal.

Gonorrhœa is such a common and important disease that we must all feel glad that attention is at last being directed to it. The results are often so disastrous and the complications so many that it is high time we tried to obtain some more definite cure than we have at present at command. I find by reference to notes and inquiries amongst other medical men that 75 per cent. of adult males have had it once; 40 per cent., twice; 15 per cent., three or more times. I find that the average duration is about nine months, varying from eight days to four years. No two medical men treat their cases in the same way, but most of them agree that the duration of the disease is long, and the treatment very unsatisfactory. The disease seems to be greatly on the increase, and the older practitioners say that it is becoming more virulent. Could not some inquiry be made into the whole theory and treatment of this dangerous disease? If the treatment so strongly advocated by "M.R.C.S. Eng." is found to be satisfactory, the thanks of the profession will be due to him for bringing under its notice so valuable a remedy. In conclusion, I should like to ask "M.R.C.S. Eng." to give fuller particulars, so that a fair trial may be given.

I remain, Sir, yours, &c.,

Sept. 18th, 1882. C. H. W.

P.S.—While on the subject, I should like to ask whether gleet is contagious or not?

WOOD PAVEMENT.

PROFESSOR O. W. WIGHT, Health Officer of Detroit, U.S.A., in a report to the City Council on the healthiness of wooden pavement, and quoted in the *Sanitary Engineer* (New York), advances several objections against that description of road paving. "The blocks, laid end-wise," says the Professor, "not only absorb water, which dissolves out the albuminoid matter that acts as a putrefactive leaven, but also absorb an infusion of horse manure and a great quantity of horse urine dropped in the street. The lower ends of the blocks, resting on boards, clay, or sand, soon become covered with an abundant fungoid growth. Thoroughly saturated with albuminous extract and the excreta of animals in a liquid, putrescible form, these wooden block pavements undergo a decomposition in the warm season and add to the unwholesomeness of the city. The streets, in fact, might as well be covered a foot deep with rotting, barnyard manure, so far as unwholesomeness is concerned. Moreover, the interstices between the blocks and the perforations of decay allow the foul liquids of the surface to flow through, super-saturating the earth beneath, and constantly adding to the putrefying mass."

Mr. E. Haughton, B.A., M.D.—When the genius foreshadowed in our correspondent's letter arises and formulates a comprehensive generalisation that shall include all therapeutics under one head, or a very few heads, it will be absurd to fight against the necessity for a designation of such a special mode of treatment, and ungenerous to withhold from the genius unbounded respect. Meantime all actual pretensions to such discoveries are worthy of nothing but repudiation by men and societies which respect the fair fame of scientific medicine.

"VENESECTION: WHY IS IT SO RARELY PRACTISED?"

To the Editor of THE LANCET.

SIR,—In your issue of to-day, "Bothered" concludes that venesection is so rarely practised because the otherwise would-be operator has never seen a vein opened. It is devoutly to be hoped for the credit of our profession that this explanation is purely imaginary. Surely no medical man would for a moment hesitate to relieve pain by giving a hypodermic injection, or perhaps save life by a stimulant enema, simply because he did not "feel that he could do it nicely." Would "Bothered" himself, for example, neglect to pass a catheter for urgent retention of urine in a woman solely because perchance he had "never witnessed the actual operation." Surely not. Yet it would be easier far to "bungle" over that than over the section of a subcutaneous vein; and I contend that by that simple section we may relieve the most agonising pain, and restore the moribund to life and vigour. I am constrained to believe that the present most deplorable disuse of venesection arises partly from a lack of exact knowledge of its usefulness and partly from a distrustful remembrance of its former abuse. Our grandfathers were bled to death and salivated to toothlessness, and the reaction from empiricism banished for a time both blue pill and bleeding. I fervently hope and believe that even as mercury is now used in a rational manner with immense benefit, so the great and true value of bloodletting will soon be recognised also, for I imagine that venesection, discreetly employed, will be found very valuable in many diseases. That it is a most potent remedy in appropriate cases of chest affections I endeavoured lately to point out in your columns, and that our present neglect therefore of this powerful weapon is most disastrous to our patients, humiliating to our art, and oftentimes unfortunate for ourselves, I am most firmly convinced.

I am, Sir, yours faithfully,

West-street, Finsbury-circus, E.C., BEDFORD FENWICK.
Sept. 16th, 1882.

To the Editor of THE LANCET.

SIR,—The statement of your correspondent, "Bothered," that "the actual operation of opening a vein is never witnessed by the student," should not remain unchallenged. It is only three years since I left Guy's. During my six years' studentship at that hospital I frequently saw venesection performed, and I bled several patients myself while holding the appointments of dresser and clinical assistant. Similar is the experience of every Guy's man who has taken advantage of the opportunities offered him by his hospital.

I am, Sir, yours faithfully,

Sept. 17th, 1882. NOT BOTHERED.

Nemo.—1. "Legally qualified practitioner" is a correct phrase.—2. Yes.—3. A person registered with a surgical qualification only is not entitled to recover for attendance in other than surgical cases.

A NEW USE FOR SALICYLATE OF SODA.

To the Editor of THE LANCET.

SIR,—In a case of severe chalk gout I applied several different lotions with a view to remove, if possible, the ugly excrescences on the fingers. None of the lotions had the desired effect of altogether removing the deposits, but a lotion of ten grains of salicylate of soda to the ounce was successful in removing small deposits from the ear. The chalky matter was softened, and in four days disappeared, leaving a small scar as its representative.—I am, Sir, yours, &c.,

THEO. M. KENDALL,
B.A. Sydney, N.S.W., L.R.C.P. Ed.

Portens-road, Maida-hill, Sept. 12th, 1882.

DISEASES OF MINERS.

THE prevalence of ankylostomiasis amongst the workmen employed in the construction of the St. Gothard tunnel is in part attributed to the fact that this disease is endemic in a great portion of Northern Italy, from which district many of the workmen came. Dr. Fabre, of Commentry (Allier), in his remarks at the Geneva Congress, maintained that any prevalence of this affection amongst miners would in most cases arise from the importation of the germs of the disease, as there is nothing in the nature of a miner's occupation to produce the disease without such a cause. Dr. Fabre considers that the ravages of the malady were aggravated by the poor and insufficient nourishment of the St. Gothard workmen, and by the bad air and noxious gases they breathed, which would have evidently produced anæmia, and thus facilitated the spread of ankylostomiasis.

Mr. John W. Stedman.—In the general view of our correspondent we fully concur, but it is not shown that the practitioner called into consultation did not "hesitate" before acting as he did. We are not prepared to say that a practitioner called into consultation should never afterwards accept the post of family adviser. The freedom of the patient must be considered. But undoubtedly he should do so, if at all, only with regret and reluctance.

DEVICE FOR ESTIMATING HÆMOGLOBIN.

To the Editor of THE LANCET.

SIR,—The following device for estimating the amount of O. hæmoglobin contained in a small quantity (say five cubic millimetres) of human blood will perhaps be acceptable to some of your readers who, like myself, have to work at a distance from reliable instrument makers, and might induce some of the latter to supply the profession with the necessary apparatus.

The principle of my contrivance is not new, being an application of Preyer's spectral estimates of hæmoglobin solutions and of a tube similar to those employed by Duboscq in his calorimeter, so as to compare successive measurable depths of a blood solution. The novelty, if such there be, consists in the use of a diluted solution of blood obtained from any red-blooded animal as a gauge determining the depth of this solution, that will give one or other of Preyer's O. hæmoglobin spectra, and observing the difference of depth required to obtain the same spectra, after a cell one centimetre deep and filled with one per cent. solution of human blood has been introduced under the gauged animal blood.

I had only at my disposal a small Browning's pocket spectroscope of the simplest pattern. I mounted it as an eye-piece suited to my microscope, and fitted to its distal end, beyond the slit, a hard rubber tube about twelve millimetres in diameter. The lower end of this tube was cut perpendicularly to its axis and closed with a plane glass disc, well cemented around the edges. When this eye-piece is in position and the sliding tube of the microscope is pushed home, the glass plate of the rubber tube touches another glass plate which forms the bottom of a cylindrical vessel standing upon the stage of the microscope. Into this vessel I introduce about fifteen cubic centimetres of a dilute solution of defibrinated blood (the requisite quantity, less than one cubic centimetre, being easily obtained by pricking, for instance, a vein under a chicken's wing), and graduate the solution so that from twenty-five to thirty millimetres of depth are required in order to produce the particular spectrum selected as a type, and the value of which in O. hæmoglobin percentage should be specially determined for each particular instrument. The depth is, of course, measured by the distance between the two glass plates already mentioned, but it can be read off at once provided the sliding tube of the microscope has been ruled on the outside with lines one millimetre apart, and numbered from above downwards. The exact depth that produces the typical spectrum having been noted down, the instrument is ready for immediate use.

A cell formed of a piece of hard rubber syringe, No. 0 (say half centimetre, inner diameter), exactly one centimetre long and cemented upright to a microscope slide, is now filled with a mixture of five cubic millimetres of human blood in 500 (half cubic centimetre) of distilled water, and covered with a thin glass cover, excluding all air-bubbles. This cell is introduced between the stage and the glass bottom of the cylindrical vessel containing the diluted chicken's blood and the typical spectrum again sought for. It will, of course, be found that a lesser depth is now required than before the addition of the centimetre cell with the human blood. The difference between the two depths, divided by the full depth previously noted down, multiplied by the percentage of O. hæmoglobin corresponding to the typical spectrum, and finally multiplied by 100, will be the percentage of hæmoglobin contained in the pure human blood from which the sample was taken.

I am, Sir, yours very truly,

Navana, Cuba, August 7th, 1882. CHARLES FINLAY, M.D.

A CORRECTION.

To the Editor of THE LANCET.

SIR,—In the "Mirror" of Sept. 16th you reported a case of lithotomy performed at the Guest Hospital. In the heading it is stated that the stone weighed "three ounces." It should have been "eight ounces."

I am, Sir, yours faithfully,

ROBERT WALFORD (late House-Surgeon).

Stanhope-street, N.W., Sept. 18th, 1882.

CAUTION TO MEDICAL PRACTITIONERS.

WE are asked to publish the following:—A man about 5 ft. 8½ in. in height, and apparently about thirty-five years of age, has been calling and raising money on the false pretence that he is a doctor from a town in Lancashire, and is in temporary difficulties from his own imprudence. He wants "to get an advance sufficient to take him home, and he will remit the amount immediately on his return." He is very plausible, and is very conversant with the names of persons in Inverness and neighbourhood, also with those of professors and medical practitioners in Aberdeen and Edinburgh.

"THE CAUSE OR CAUSES OF ACUTE TONSILLITIS."

To the Editor of THE LANCET.

SIR,—It appears to me that in the correspondence on this subject, which has recently appeared in your journal, sufficient notice has not been taken of the fact that the terms quinsy and tonsillitis cover three distinct conditions.

With reference to the case reported by Mr. Boys in THE LANCET of August 26th (which I have only just seen), I am not surprised at salicylate of soda being ineffectual. My experience of the use of that drug leads me to confine its beneficial results to catarrhal tonsillitis—i.e., catarrh of the mucous membrane and crypt follicles. These cases very rarely run on to suppuration. I have never seen a case that was clearly one of simple catarrhal tonsil"tis eventuate in suppuration, although I should not like to say they never do so. On the other hand, the true fibrous tonsillitis—that is, inflammation of the gland substance itself—almost invariably suppurates, as does very frequently, though not always, a form of the disease which really affects only the surrounding structures, and which is often accompanied, like the parenchymatous form, by considerable œdema of the palate, uvula, &c. This was the form of the disease in the case I mentioned in your issue of July 29th, during the earlier part of the discussion.

Cases of the two latter classes are very unlikely, so far as I have seen, to be benefited by salicylate of soda; for although, for the sake of observation, I have used it in all cases of tonsillitis, whatever their nature, up to quite recently, I have not found any good result therefrom save in the catarrhal form. I have therefore discontinued its use in the other forms of tonsillitis. But that it is of great value in cutting short the simple catarrhal form I can speak from a repeated personal experience.

I am, Sir, yours faithfully,

KENNETH W. MILLICAN, B.A.

Kineton, Warwick, Sept. 18th, 1882.

To the Editor of THE LANCET.

SIR,—Under the above heading, in your issue of the 2nd inst., I noticed a letter from Mr. Grewcock, stating that he has found pulling down the lobules of the ears relieves painful deglutition, and can from personal experience bear testimony to the efficacy of the principle which he recommends—viz., closure of the external auditory meatus; although the plan suggested in my case, and which I now always recommend, produces that effect in a different manner.

When a boy, I had a very severe attack of diphtheria, and the following method of relieving the odynephagia was suggested by a servant who had suffered from the same disease. It is this. To stand as nearly as possible behind the patient, who should be in bed or seated in a chair, and place the palm of each hand over an ear, then make very firm pressure. I always preferred the servant before mentioned to press my ears whilst I was taking nourishment, because she did so more firmly than anyone else; my friends either feared that the force they were using would injure me, or else had not the strength.

I am, Sir, yours truly,

T. MARK HOVELL.

Mansfield-street, Cavendish-square, Sept. 2nd, 1882.

Mr. W. R. Parry Jones.—We are not aware of the existence of an institution of the kind mentioned.

LECTURES ON DISEASES OF WOMEN AND CHILDREN.

To the Editor of THE LANCET.

SIR,—A want often exists of which we are not conscious until circumstances force it upon our notice. Such is my case. Having completed my necessary residence for the M.B. of Edinburgh, I find I require a three months' systematic course of lectures on diseases of women and children. I have sought in vain to meet with such a course in London.

As other students may be placed in a like predicament, I would ask—would it not be well that at some of the hospitals which take the lead in things medical a systematic course on the above subjects should be instituted? Without this it certainly strikes me our metropolitan schools are incomplete.—I am, Sir, your obedient servant,

London, Sept 20th, 1882. FOURTH YEAR'S MAN.

THE LATE SURGEON-MAJOR GEORGE SHAW, A.M.D.: MENTION IN DESPATCHES.

To the Editor of THE LANCET.

SIR,—I find no entry whatever in General Graham's despatch about the affair at Kassasin Lock with reference to the death of our brother officer, George Shaw, who perished there. These official neglects are lamentable.

I am, Sir, yours, &c.,

Sept. 20th, 1882. ONE OF THE A.M.D.